

Cover image - Aurora imaged at the Briars 17th July 2023 by *Phil Peters* from the paddock east of the MPAS observatory.



# 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/>

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Mornington Peninsula Astronomical Society

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# SOCIETY NEWS



**Public Viewing Night July 7th** - Sixty-five visitors attended the July public stargazing Friday at the Briars, with almost complete cloud cover all evening, no doubt dissuading some from making the journey. Inside, Peter Skilton gave the talk and answered many questions before the group moved outside for a tour of the observatory, with the possibility of glimpses of some objects.

Members attending (who remembered to put their name in the logbook near the counter) were Phil Peters, Chris Kostokanellis, Fred Crump and Bonnie Cass, Mark Stephens, Sylvie Grandit, Ben Claringbold, Nerida Langcake, Alan Predjak, Stewart Gangell, Simon Hamm, Jamie Pole, Jason Heath and friend, Greg Walton, and Rosemary Shand. *Regards, Peter Skilton*

**AGM - Society Meeting July 19th** - For those of you who are not yet subscribed (it's free) to the MPAS YouTube channel, this month's meeting has been uploaded for viewing. The meeting features Katrin Raynor-Evans, Astronomy writer and BBC communicator, Fellow of both the Royal Astronomical Society and Royal Geographic Society, on the topic of "Exploring Astronomy And Space Through Philately". Also showcased was the May field trip by 4 MPAS members to central NSW for the South Pacific Star Party. We close with the launch of the ESA Euclid mission earlier this month from Cape Canaveral, together with the recovery of its SpaceX first stage of the rocket, set to the music of Liberty by the composers at MOKKA.

You can watch it here by clicking on this link and going to the most recent video on the channel: <https://www.youtube.com/channel/UCm6XOkIcIft4y0XRBXpXuw> *Regards, Peter Skilton*

The 2023/2024 MPAS Committee is as follows:

#### Office Bearers

President: Peter Skilton  
Vice President: Chris Kostokanellis  
Secretary: Nerida Langcake  
Treasurer: Jamie Pole

#### Committee Members

Anders Hamilton  
Simon Hamm  
Trevor Hand  
Guido Tack  
Phil Peters



**Working Bee & Members BBQ July 22nd** – Saturdays BBQ and working bee was a huge success, with no shortage of members coming along to help. We also had the pleasure of hosting the Astronomical Society of Geelong, who made the long drive to meet us all. And Mark Iscaro, the president of the ASV joined us as well. What a night!

Things kicked off at 4pm, with the usual mowing, cleaning, and preparing for dinner. The members from ASoG – including Kelly, Hugh, Rod, Ian, Ernie and Jackson arrived early, being greeted by Chris and myself. Dave, Nerida, Greg and Peter soon followed, and were all happy to show our guests around the site.

The members helping were numerous, with Leigh happily having his first go on the ride-on, backed up by Steve, Andrew and Mark all chipping in to get the lawns looking nice. And Geoff did a great job of pruning branches that were blocking the walkway.

Meanwhile, several others set to work, cleaning and preparing for dinner. Pia, Anne, Marlene, Cathy and Donna all did a great job, with some delicious food brought along with the usual fare. Mark and Simon did a fine job manning the BBQ.

As usual, Greg was busy in the observatory, as well as showing our guests the sundial, and Chris and Guido checked out our latest donated telescope, a 105mm refractor, which needed a mount. Being cloudy, no observing was done later in the evening.

Once dinner was ready, we all finally settled down to a very fine meal with great company.

It was nice to see such a large turnout, with almost 40 people attending. And a big thanks to the ASoG and Mark Iscaro for coming to visit. It was a pleasure hosting you all.

Hope I haven't forgotten anyone.

*Warm regards, Phil Peters*

Thanks to MPAS for inviting and hosting us at yesterday's members BBQ. Astronomical Society of Geelong members had a great time meeting you and hopefully, forging new friendships and partnerships to further astronomy for both of our clubs. We look forward to seeing many of you again at VicSouth and VASTROC in November. We would also love to have your members make the pilgrimage to our Geelong club, so we can show you what we are doing. *Kelly Clitheroe*



July Working Bee Photos by Phil Peters



Group Photo Geelong and MPAS members



Geoff



Steve and Andrew



Leigh



Steve



Marlene, Mark and Chris

Big thanks to all who helped out at the working bee, the MPAS site is looking great. Greg Walton

**Scout viewing July 25th** - July 25th saw 65 visitors from the Hastings Scouts and Tyabb Cubs visit the Briars for some stargazing. The originally anticipated visit by the Guides was postponed and rescheduled for us to visit them at a later date, but the Tyabb group readily filled the gap at short notice.

Five minutes after arrival, the Tiangong space station passed silently overhead from a WSW to NNW direction, before disappearing near the First Quarter Moon. Although there was plenty of cloud, the eagle-eyed kids had no trouble spotting it in the gaps and following it at magnitude -2.1 along its path. They then proceeded to view the Moon through the assembled telescopes outdoors and in the main observatory. There were some kids able to view Mars and Venus in brief cloud gaps.

Peter Skilton then gave the talk indoors, with seemingly little prospect of the sky clearing for the rest of the evening. There were so many questions arising that really only one in four could be answered in the available time. As the evening drew to a close, the talk ended and, abracadabra, the skies cleared on cue and Saturn put on a great showing over the eastern horizon, enabling everyone to see it and its rings with no trouble.

Helping outdoors with operating the instruments and running the show were Phil Peters, Chris Kostokanellis, David and Jamie Rolfe, Fred Crump, Mark Stephens, Greg Walton, and Jamie Pole. *Regards, Peter Skilton*

**Scout viewing July 28th** - The Briars event last night began early at 6pm with 20 young Joeys, plus leaders, from the 2nd Mornington Sea Scouts, 1st Rosebud Sea Scouts and 1st Ranelagh Scouts who had a view up-front of the just-past First Quarter Moon and Venus through cloud patches, before going indoors for the talk by Katherine McCoy and Peter Skilton. They were a well-behaved group, whose attention span stretched to well over 30 minutes sitting inside a warm room. Unfortunately, the cloud cover didn't play ball to allow any later sky viewing for this group, though they all were able to tour the observatory if they wished.

By 8pm, the Joeys had left, and the next shift of 67 Guides, Cubs and Scouts (plus a new bunch of leaders) had arrived en masse in a coach and in private vehicles. This included a good contingent of Guides from Carrum, Beaumaris, Mentone and Narre Warren who quickly occupied the prime seats at the front of the auditorium, and also older Cubs from 2nd Mornington Sea Scouts.

A second talk, aimed at the older group of kids, was then given by Katherine and Peter....and there were lots and lots of questions and statements from the audience. They do love statements these days.

Amazingly, one of the girls in the front row was named Theia! We found that out when it came time to showing the slide of the proto-planet Theia crashing into the proto-Earth 4 billion years ago and forming the Moon and knocking us over in space.

After the talk, the skies had cleared a little, allowing some of the visitors to see the Moon and Saturn between cloud and through thin patches, where the ringed planet hadn't been above the eastern horizon during the Joeys' shift earlier in the evening.

Helping outside were Phil Peters, Nerida Langcake, Fred Crump, Ben Claringbold, David Rolfe, Jamie Pole, Greg Walton, Chris Kostokanellis, Mark Stephens, Anders Hamilton, Cathy Dethick and Simon Hamm. Plus Katherine had her telescope set up as well.

*Regards, Peter Skilton*

**Scout viewing July 29th** - Saturday evening saw 60 cubs and their families from the 1st Devon Meadows troop attend the Briars for some stargazing. There was a quick view of the Moon upfront in thickening cloud; then everyone moved indoors to hear Katherine McCoy and Peter Skilton give the talk. A few of the visitors in this group were the most energetic and exuberant we've had for a long while with their desire to ask questions. Did I hear someone say boisterous? Fortunately the red cordial was safely locked away. There were lots of questions ranging across a lot of topics, and a few of the kids seemed to have been influenced by believing weird conspiracy theories that infest social media these days under the guise of "news".

By the time we came to the final Black Hole question at the end of the indoors session, the skies had cleared enough to allow good views of ringed Saturn in the east, the cratered, waxing gibbous Moon, and deep sky objects. Helping run the shebang outdoors with the telescopes were Phil Peters, Nerida Langcake, Greg Walton, Ben Claringbold, and Jamie Pole. During the evening, Nerida sold 2 large meteorites and several space badges and red lights, raising the bar for Simon to beat next time. *Regards, Peter Skilton*

**Public viewing Night August 4th** - The regular public night saw 59 visitors come to the Briars for some stargazing on Friday. Guido Tack gave the talk indoors before flying off for work to the Jet Propulsion Laboratory in the USA (a hard job, but someone has to do it).

After the talk, everyone moved outside in cool conditions to have an almost completely cloud-free sky, though with some contrast interference by the waxing Moon. Other areas in the region were not so lucky with heavy cloud cover ahead of an approaching cold front, so the elevation of Mt. Martha surely helped. Helping outdoors and in setting up were Nerida Langcake, Simon Hamm, Phil Peters, Greg Walton, Chris Kostokanellis, Peter Skilton, Julie McErlain, John Goodall, and Ben Claringbold. Good views were had of Saturn, the Jewel Box, NGC3532 the Pincushion, NGC5139 Omega Centauri globular cluster and 47 Tucana globular cluster to name but a few. *Regards, Peter Skilton*

**Nation Indigenous Space Academy viewing Night August 15th** - A small group from Monash University come to the Briars to view through the telescopes, before heading off to the USA to do a tour of JPL, *speaker Guido Tack*



**Society meeting August 16th** - The meeting features Marion Kerr, Science Communicator on behalf of the Quantum Gravity Research Organisation, on the topic of "What Is Reality?" and introducing Emergence Theory as a step towards a Theory of Everything.

Guido presented Sky for the Month, followed by Chris with the AstroMoPho Challenge. Also showcased was a recent field trip by 2 MPAS members to Loch Sport for a collaborative public stargazing evening with the LVAS, ASV and Destination Gippsland. We close with the launch of the NASA TROPICS mission in May from New Zealand, set to the music of Sirius by the composer Infraction.

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*

**NSW - Public Viewing Night August 18th** - Friday's National Science Week public night saw 75 visitors at the Briars to hear Trevor Hand speak about exoplanets. Conditions were very cloudy but did clear sufficiently when Trevor was up to Saturn, to pause the talk and get everyone outside to view Saturn, Jewel Box, 47 Tuc and other deep sky objects on show outside. The hole in the cloud then closed up about 15 minutes later and everyone moved back indoors into the warm to hear the remainder of the talk.

Members known to be present and helping on the night were Chris Kostokanellis, Nerida Langcake, Greg Walton, Jamie Pole, Mark Stephens, Jason Heath, Alan Predjak, Ben Claringbold, Peter Skilton, and eager new member this year, Sam Healey, a motorcycle mechanic, who made his debut and did a great job rounding up the public for the second part of the talk.

As a reminder to members who do attend, please put your name in the log book by the TV at the entrance; that way we will be sure to mention your name. Any member can come along to these public talks for free and without booking as we set aside about 10 seats for this, and you can sit in and listen to the talk, and/or help the other members around the site. The talks are aimed at the public and do necessarily repeat from time to time. *Regards, Peter Skilton*

**Working Bee & Members BBQ August 19th** – Saturday's working bee and BBQ turned out to be quite a nice day, with our many small trees getting a trim to keep the site neat and tidy and maintain our great views of the night sky. We also had Brian Stephens give an excellent presentation on The Inflationary Universe.

Greg and Simon (Meyer) started pruning early on, and were soon joined by Geoff, Dave and Landon, Chris, Kevin, and Mark. Everyone chipped in to get it done for next weekends' free green waste day at the local tip. And while all this was going on, Mike managed to mow around everyone as they worked. Fred was helping too, and did a fine job of cleaning the observatory.

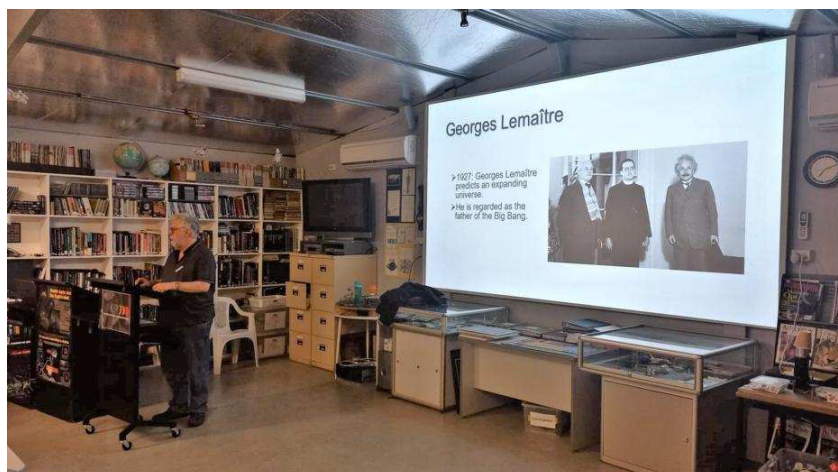
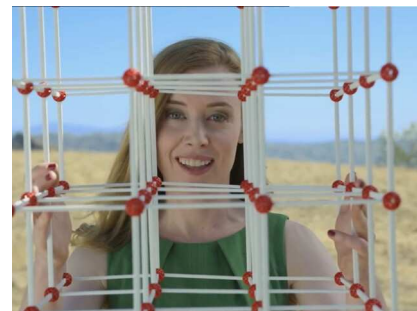
Geoff and Anne also brought along their Celestron CPC-800 telescope in order to realign the finder scope over a longer distance than they could locally. Always good to see members bringing along their scopes, whether to use, fine tune, or just to get a bit of help from other members.

After the working bee, we all moved inside to enjoy dinner, which was lovingly prepared by Anne and Nerida, with Mark and Jamie working the BBQ. As usual, everyone helped to get it ready and dish up.

It was also nice to see two of our newest members join us, Selissa and Edwin, who were warmly welcomed by our secretary, Nerida Langcake. It was lovely to meet you both and we hope you had a great night!

After dinner, Brian Stephens was introduced by our newly elected vice president, Chris Kostokanellis, in his first official role as VP. Brian then gave his presentation on The Inflationary Universe. This was very well received, with many questions afterwards and much friendly debate on the subject. Very thought provoking. Thanks, Brian!

Well, that's about it for now. About 20 people attended. Please forgive me if I've forgotten anyone, and see attached photos. Hope to see you next month! *Warm regards, Phil Peters*



# OBSERVATORY UPDATE



Right - Big thanks to Phil Peters (new committee member) for trimming the trees on the eastern fence line and taking the branches to the tip. This will make it much easier to see Saturn and Jupiter rising above the eastern horizon over the coming months. Phil also does many other unseen jobs around the MPAS site such as painting and telescope maintenance, including adjusting and changing the batteries on the red dot finders.

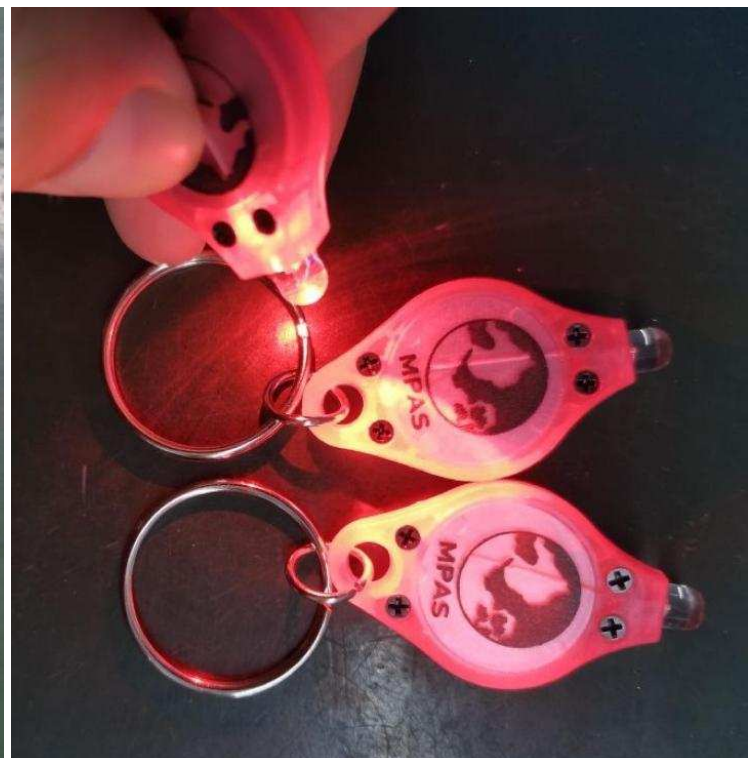


Left - A bird's-eye view of the MPAS observatory (Image credit: *Peninsula Essence Magazine*).



Right - A bird's-eye view of the Sirius Dome (Image credit: *Peninsula Essence Magazine*).

New red-light torches with MPAS logo will soon be on sale at the MPAS sale area. See *Simon Hamm*





# VASTROC 2023

## SATURDAY 25TH NOVEMBER

The Victorian Astronomy Convention is back!  
Hosted in 2023 by MPAS at Mt Martha.

The convention is open to the public and will contain talks, displays and interactive forums in a social atmosphere.

Keynote speaker: Dr Brad Tucker, Astronomer and Cosmologist

Entry includes lunch and dinner

Including Special Guests:



Photo credit: MPAS Member Nik Axaris

The Victorian Astronomy Convention, **VASTROC**, is the premier State get-together held every 2 years for all amateur astronomers of any experience level from across Victoria, and sometimes from interstate. It is also open to interested members of the public to attend even if they aren't part of an astronomy club. VASTROC has a long history stretching well back into last century, and this one will once again be an in-person event; the first since the pandemic disruptions of recent times.

Mornington Peninsula Astronomical Society is excited to be hosting VASTROC at the Mount Martha Observatory on the Mornington Peninsula in southeast Victoria. The day includes multiple speakers drawn from the leading astronomy groups across Victoria and will cover a variety of topics for the curious mind. There will also be an astrophotography competition and, weather being kind, some night sky observing outdoors after dark.

The Keynote speaker is **Dr Brad Tucker**, Astrophysicist and Cosmologist, Mount Stromlo Observatory (Australian National University). He is a well-recognised, popular TV and radio personality and expert in communicating simply all things to do with astronomy and space in Australia.

There will also be special guests **OzGrav**, with their amazing Virtual Reality headset system which takes people to a virtual universe full of planets, stars, black holes and of course, gravitational waves.

Dress code is entirely informal (shorts and sandals are welcome).

**The \$80 fee includes lunch, dinner and refreshments throughout the day and evening.**  
Attendees under the age of 18 must be accompanied by their parent/guardian.

**Date: Saturday 25th November**

**Time: 11am until 8:30pm with stargazing afterwards (if the skies are clear).**

**\*\* BOOK NOW TO AVOID DISAPPOINTMENT! \*\***

**BOOK HERE: <https://www.trybooking.com/CJRGK>**

# WHAT'S ON



## The 2023 timetable of events.

### SEPTEMBER

Friday 1st, 8pm Briars. Public stargazing night. Speaker Manfred Berger. 95 booked.  
 Tuesday 5th, 7pm Briars. Toorak College Year 7 girls (class #1). Speaker TBD. 45 anticipated.  
 Wednesday 13th, 6:30pm Briars. Berwick Guides at hall at 110 High St (Princes Hwy), Berwick. 30 anticipated. Speaker Peter Skilton.  
 Thursday 14th, 7pm Briars. Toorak College Year 7 girls (class #2). Speaker TBD. 45 anticipated.  
 Saturday 16th, 2pm Briars. Astrophotography Workshop. Public & members. Speakers Various. 85 booked.  
 Tuesday 26th, 7pm. Martha Cove Village, 101 Pickings Rd, Safety Beach. 30 anticipated. Speaker TBD.

### OCTOBER

Friday 6th, 8pm Briars. Public stargazing night. Speaker TBD. 95 booked.  
 Tuesday 17th, 7pm. Parkdale Secondary School, Warren Rd, Mordialloc East. 200 Year 7. Speaker Peter Skilton.  
 Saturday 21st, 4pm Briars. Telescope Learning Day. Public & members. Speakers Various. 70 anticipated.  
 Tuesday 24th, 7pm. Stella Maris Primary School, 113 Oak St, Beaumaris. 130 Year 1-6. Speaker Peter Skilton.  
 Thursday 26th, 8pm. Mentone Primary School, Childers Rd, Mentone. 57 Year 2's on sleepover. Speaker Peter Skilton.  
 Friday 27th, 8pm Briars. Scout, Cubs & Guides night. Speaker TBD. 85 anticipated.

### NOVEMBER

Friday 3rd, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated.  
 Saturday 25th, all Day Briars. Victorian Astronomy Convention (VASTROC). All VIC astronomical societies & public.

### DECEMBER

Friday 1st, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated.

## The 2024 timetable of public events.

### JANUARY

Friday 5th, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated.  
 Saturday 6th, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated. To be confirmed.  
 Friday 12th, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated. To be confirmed.  
 Friday 26th, 8pm Briars. Public stargazing night, Australia Day. Speaker TBD. 95 anticipated. To be confirmed.

### FEBRUARY

Fri 2nd, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated.  
 Sunday 25th, all Day marquee. Benteleigh Street Festival, Main St, Benteleigh. 6,000 Public anticipated. To be confirmed.

### MARCH

Friday 1st, 8pm Briars. Public stargazing night. Speaker TBD. 95 anticipated.  
 Monday 11th, all Day marquee. Somerville Family Day, Fruit Growers Reserve, Somerville. 10,000 Public anticipated.

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.

Regards, Peter Skilton

<https://www.workingwithchildren.vic.gov.au/>

## ★ New Members Welcome ★

Stephen Lomax  
 Kelly Clitheroe & Hugh Coleman  
 Liz Cameron & family  
 Finn & Peter Cracknell  
 Sam Healey  
 Geoff Brooks & Maree Brooks-Bacash  
 Bhashag Mohan

Hannah Gurney & family  
 Karen Webber  
 Mark Reid & Donna Blackwood  
 Shweta Chug & family  
 Edwin Ingles & Selissa Damor  
 Brian Riley

### MPAS SUBSCRIPTIONS 2023

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 2023 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 2023 fees is:

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. P O Box 596, Frankston 3199
- 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.

### SOCIETY FEES

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

See more options on-line



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		September / 2023					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
					1 Public night 8pm Neptune above Moon	2 Saturn rises at 6pm Jupiter rises at 12am	
3	4 Jupiter right of the Moon	5 Eu shadow 1:14am S Eu shadow 3:32am F Io transit 3:43am S Toorak College	6	7 Last Quarter	8	9 Io transit 11:53pm S	
10 Io shadow 12:52am F Io transit 2am F	11	12	13 Moon at 406,291km Berwick Guides	14 Toorak College	15 New Moon Ga transit 12:38am S Ga transit 1:52am F	16 APW 1pm	
17 Mars below a thin crescent Moon	18	19	20 Society Meeting 8pm	21 Ga shadow 11:48pm S	22 Ga shadow 1:48am F	23 Working bee 4pm BBQ 6pm First Quarter	
24	25	26 Saturn below Moon Io transit 12:03am F Martha Cove Village	27 Saturn above Moon	28 Moon at 359,911km	29 Full Moon Eu shadow 10:17pm S	30 Eu transit 12:01am S Eu shadow 12:38am F Eu transit 2:13am F	

**Monthly Events**

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

**Public night** - 8pm to 10pm on the 1st @ The Briars MPAS

**Astrophotography Workshop** - 2pm to late on the 16th @ The Briars (Public event)

**Society Meeting** - 8pm to 10pm on the 20th @ The Briars (Public & members)

**Working Bee** - 4pm - **Members night & BBQ** - 6pm on the 23rd @ The Briars

Watch your emails, as on any clear nights the Observatory may be opened for members-only viewing.

CALENDAR		October / 2023					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
1 Saturn rises at 4pm Jupiter rises at 10pm	2 Jupiter above the Moon Io shadow 10:53pm S Io transit 11:40pm S	3 Uranus above Moon Io shadow 1:03am F Io transit 1:47am F	4	5 Saturn left of Moon	6 Public night 8pm Last Quarter	7	
8	9	10 Moon at 405,425km	11 Venus above a thin crescent Moon dawn	12	13	14	
15 New Moon	16	17 Parkdale Secondary	18 Society Meeting 8pm Io shadow 9:12pm S Io transit 9:35pm S	19	20	21 TLD 4pm BBQ 6pm	
22 First Quarter	23	24 Saturn below Moon Stella Maris Primary School	25 Scorpius Deadline Io shadow 11:06pm S Io transit 11:19pm S	26 Moon at 364,872km Mentone Primary School	27 SCAG 8pm	28	
29 Full Moon Jupiter above the Moon	30	31 Io shadow 9:56pm S Io transit 10:09pm S	1st November Io shadow 12:16am F Io transit 12:21am F	18th October Io shadow 11:20pm F Io transit 11:45pm F	26th October Io shadow 1:15am F Io transit 1:27pm F		

**Monthly Events**

**Public night** - 8pm to 10pm on the 6th @ The Briars MPAS

**Society Meeting** - 8pm to 10pm on the 18th @ The Briars (Public & members)

**TLD = Telescope learning day** - 4pm on the 21st @ The Briars (Public & members)

**Members night & BBQ** - 6pm on the 21st @ The Briars (Public & members)

**Khaki Boxes - SCAG Scout, Cubs & Guides** - 8pm to 10pm on the 18th @ The Briars

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

# THE BRIARS SKY

By Greg Walton



At the start of Spring, Saturn is now rising in the east at 6pm. Best to start viewing Saturn after 8pm as by then it would have climbed high enough to be out of heat distorted atmosphere near the horizon. The very best views are when Saturn is at its high point in the sky. Also seeing conditions are affected by the temperature and the direction of wind, north wind being the worst and south wind being the best.

Finding Saturn is not too difficult; like for all the planets follow the same path across the sky as the Sun and the Moon. Shining at a magnitude of -0.4 at opposition which is equal to the brightest stars but has a yellow tinge. Another helpful hint to know is that the planets don't twinkle like stars. This is because of their large angular size and closeness to us, whereas stars are at a massive distance from us and are seen as a tiny point of light which refracts when it passes through the Earth's atmosphere.

At first glance you will see that the rings are more edge-on than last year. Where the rings disappear behind Saturn you will notice that there is a gap where the rings don't actually touch Saturn. This is caused by Saturn orb casting a shadow on the rings. This gap changes from day to day; at the beginning of spring the gaps are equal on both sides, but as the days pass the gap on the east side grows larger, while the gap on the west side gets smaller and quickly disappears altogether.

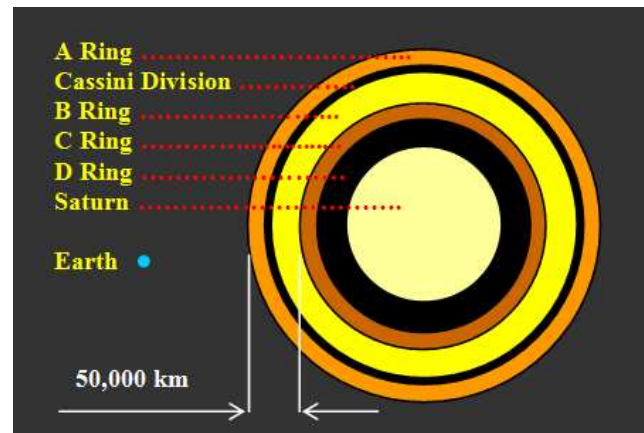
Saturn is at opposition on the 27th August, which means it's at its closest point to Earth. With a high quality telescope at high magnification and a night with excellent seeing conditions you can see a slight hint of belts across Saturn's surface. Coloured filters which thread into the back of your eyepiece can help, 15 (Deep yellow) or 21 (Orange) helps to reveal cloud bands.

Looking at Saturn rings you will see a thin inky black gap in the rings, this is called the Cassini division, named after Giovanni Domenico Cassini (1625 – 1712), who also discovered four of Saturn's moons.

The Cassini Division is a region 4,800 km in width between Saturn's A Ring and B Ring, which is easier seen at 100 times magnification.

Each group of rings are assigned a letter of the alphabet with the brightest rings being A B & C. There are 4 fainter rings which can't be seen with amateur telescopes the (D E F G) rings.

With a small telescope Titan is easily spotted as it the largest and brightest of Saturn's moons. Titan orbits as the most distant moon from Saturn and is often mistaken for a star, while the smaller moons orbit close to Saturn and are easily missed with Saturn shining bright. You need to adjust the focuser till Titan is pin sharp to have any chance of seeing the smaller moons. An 8 inch telescope or larger with an eyepiece that gives 150 times magnification is best. This also depends upon the seeing condition on the night, poor seeing conditions being only 100 times and excellent being over 200 times.



## Product with Starry night

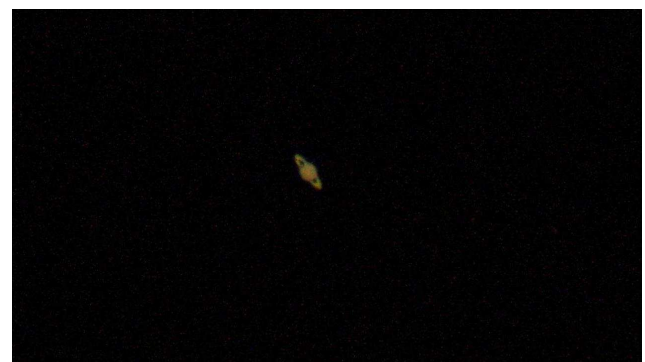


Saturn's orb has a diameter of 116,460 km, that's almost 10 times the diameter of the Earth. The distance from the Sun to Saturn is on average 1,426,980,000 km and it takes 29.5 years to complete one orbit around the Sun moving at a speed of 9.64 km per second.

Saturn is almost entirely gas, making it impossible to observe its speed of rotation. Also Saturn's cloud belts move at different speeds with an average of 10,6 hours.

Saturn's rings are 282,000 km in diameter; so if we think about it, Saturn's rings would stretch 3/4 of the way from the Earth to the Moon. The rings have an average thickness of only about 10 km, made up of billions of small chunk of ice, which is why the rings shine so brightly. It's through that the rings were formed when 2 of Saturn's icy moons collided and then the tidal forces of Saturn's gravity flattened the debris into the rings.

**Photographing Saturn is not easy.** The most important thing is to have a telescope with a very long focal length (3 to 8 metres) if you are using a DSLR or mobile phone, a Barlow or 3 x converter can be used to achieve a long enough focal length, *see image at right*. Also a short telescope, say 1 metre, with a camera with a small sensor can do, such as a web-cam. Or a designated planetary camera is the most desirable setup. The easiest way to image the planet, is to capture a short video, then use software such as RegiStax to convert the video into a single high quality image.



Saturn 7200mm FL Pentax Kr Video with 3 X convertor

## India's Chandrayaan-3 successfully lands on the Moon

The world is celebrating with India, as India has achieved its first soft landing on the moon. Chandrayaan-3 landed on the moon near the south pole on August 23, 2023. In addition, the team deployed the rover ramp. As the name suggests, this is the third mission in a program of Indian lunar exploration. Various problems affected the previous two Chandrayaan satellites.

So what will Chandrayaan-3 do? There are some nice images of the lunar surface from the lander module camera, which shows the successful separation from its propulsion module. That's the part that stays in lunar orbit. But the main task for the lander and rover was to show that the ISRO can successfully perform a gentle landing on the moon.

The deployment of the lander and rover was the true test. It means that India has become the fourth country to have had a working rover on the lunar surface behind the Soviet Union, U.S., and China. This will massively improve its reputation for scientific space launches. Also, it potentially gives the agency more leverage for funding future mission planning as well.

### What's on the moon lander?

The lander unit contains four main scientific instruments, including thermal and atmospheric instruments and a laser retroreflector array. These reflectors are used to measure the distance to the moon from the Earth to a high degree of accuracy.

Essentially, a high-power laser is fired toward the moon. Then scientists measure the time taken for the light pulse to reach the moon and reflect back to Earth. Knowing the speed of light, the time it takes (roughly 2.5 seconds there and back) gives us a distance. The lander is also able to measure moonquakes, weak seismic activity that occurs on a monthly basis.

Scientists can use the speed that the waves travel across the moon to work out its density. Researchers hope to be able to calculate more accurate values for the depth of the lunar crust (its outermost layer).

The rover also contains scientific instrument packages. Its main focus is on identifying the composition of the lunar surface through X-ray spectrometry.

An important part of this mission is also the cost of AU\$117 million. That's an exceptionally low budget for a research mission leaving the Earth. It is comparable to the cost of a SpaceX Falcon 9 launch. It is worth comparing this cost to the recent NASA Artemis mission, which has future planned costs per launch of AU1.25 billion. And that doesn't include the AU\$20.5 billion development costs over the last 20 years.



Chandrayaan-3's Pragyan Rover includes an indent of the national emblem of India and the logo of ISRO on its two rear wheels. As the Pragyan Rover is deployed on the Moon's South Pole, the wheels will leave an impression of these symbols in the lunar soil for billions of years.

# YOUR ASTRO QUESTIONS

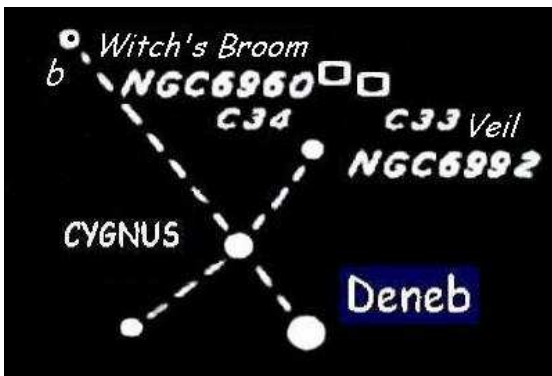
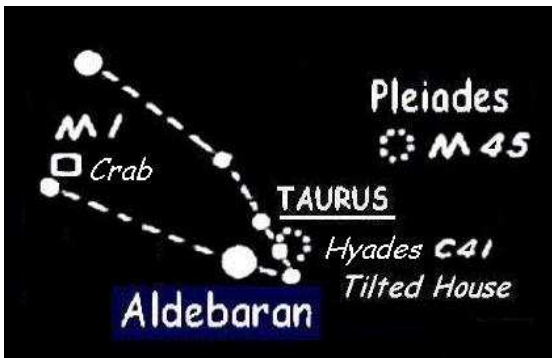


## What is a Super Nova Remnant - SNR? *By Greg Walton*

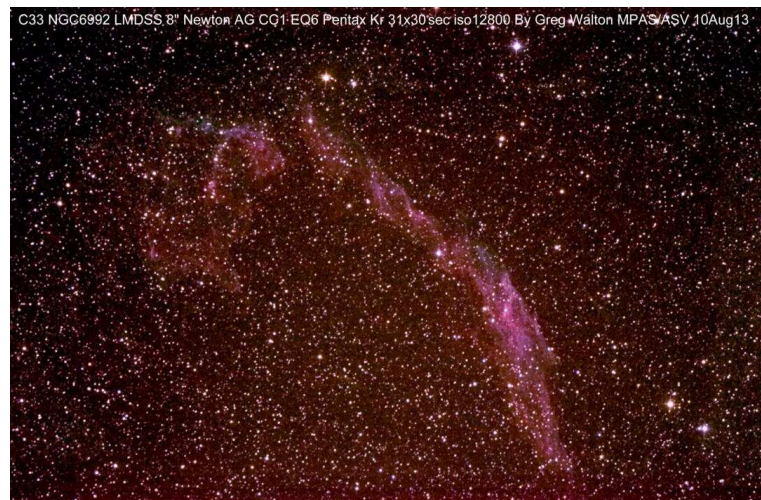
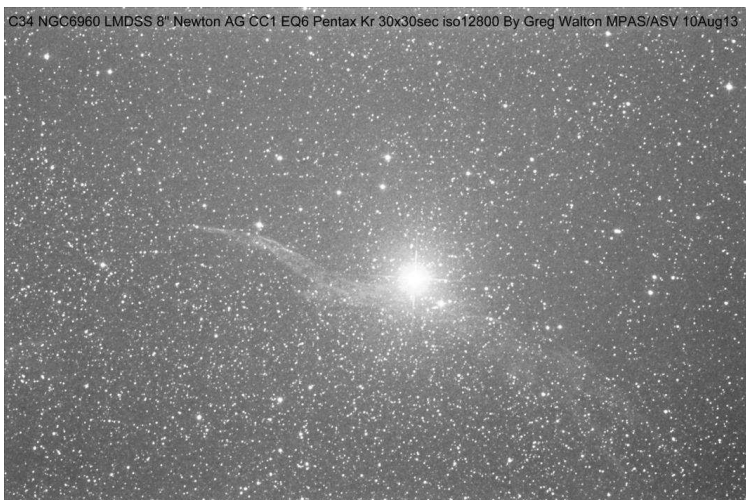
Super Nova Remnants (SNRs) are formed when a large star gets to the end of its life. As it burns through the last of its fuel at an ever increasing speed, it explodes in a runaway event called a Super Nova. (*Nova is the term used for a new star from the Latin Novus. It's called new because the star brightened to the point in which we can observe it for the first time*). The explosion blasts the outer layers of the star away from the star's core, forming a vast cloud of expanding material. Over time this vast cloud of material gets larger and fainter. The explosion also exerts an enormous force on the star's core, crushing it into a neutron star if the mass of the star is between 8 to 20 solar masses or a Black Hole if the mass of the star is more than 20 solar masses.

**Viewing SNR** through a telescope is a bit of a challenge as they're often very faint and can occupy a large area in the night sky. You will need to use every trick in the book. The first thing you need is the largest telescope you can find, 12 inch or larger, with a UHC or O3 filter. Then the conditions need to be perfect with no Moon at a dark sky location. Your eyes will need to be dark adapted, which normally takes a minimum of 20 minutes. I found it very useful to drape a coat or towel over my head, to block out any stray light from getting to your viewing eye when looking through the telescope. Sounds a bit lame, but it works, don't worry no one will see you in the dark. Years ago it was very popular to wear an eye-patch over your viewing eye, only removing it to look through a telescope. Even starlight from the Milky Way is enough to affect your night vision and YES, alcohol doesn't help. Open truss-tube telescopes need to be fitted with a shroud, checked for any refractive surface that could bounce light into the eyepiece and painted with matt black paint.

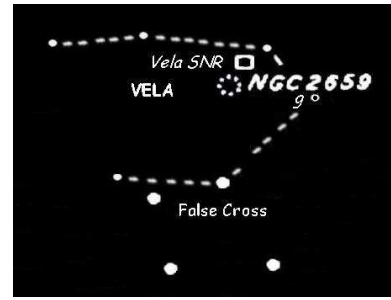
The most famous SNR is the Crab Nebula, **Messier number 1**, with its spinning neutron star at its heart which spins at 30 times per second and discovered with the Arecibo radio telescope in 1968. Located in Taurus, this summer object is not that easy to see from the Briars as it sits in a light polluted sky to the north. Best viewed with a UHC or O3 filter. **Messier 1** was created about a 1,000 years ago and is now 10 light years across, at a distance of around 6,000 light years. Expanding at 1 light year every 100 years, this means we can see slight changes in its appearance over time. Its name came about when William Parsons sketched **Messier 1** as a crab in 1842.



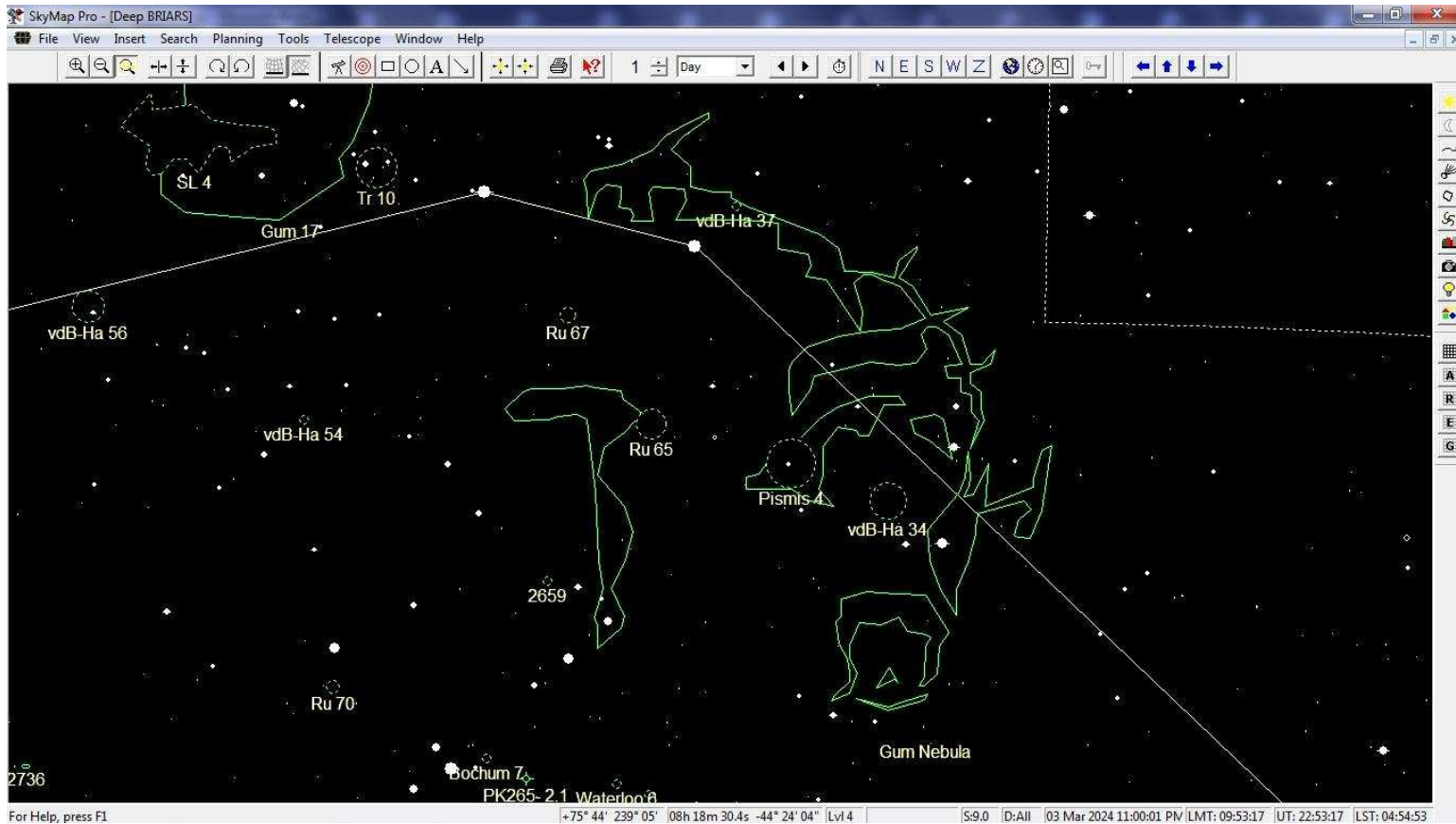
A popular SNR for astrophotographers is the colourful NGC6992 or C33 the Veil Nebula in Cygnus, a winter object low in the northern sky from Victoria. *See image below right.* Also just to the left is NGC6960 or C34. Its popular name is the Witch's Broom, the bright star is the witch and the nebula is the broom. *See image below left.* Both images were taken from the ASV's dark sky site LMDSS near Heathcote.



The Vela SNR (Gum 12) is in the southern sky near the False Cross, but is not easy to find even though it takes up a large part of the sky being about 4 degrees across. Also it's not an object that is usually included on your Go-To hand controller, but does have one open star cluster nearby, NGC2659, which you can use to get you in the correct area. Best time to view or image is in March, when it sits almost directly overhead at +80 above the southern horizon. At the bottom of this page, I have listed 3 objects in the Vela SNR which you can use by adding their RA & Dec to your Go-To hand controller.



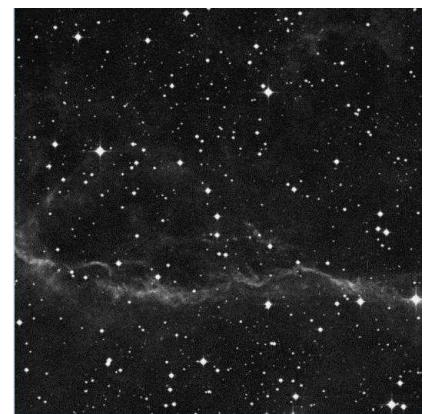
Some parts are easily spotted in a large telescope with O3 or UHC filter at a dark sky location. It gave me great pleasure following the whimsy filaments with my large Dobsonian to see how far they went. The faint areas of the Vela SNR can only be captured in long exposure photographs, as the Vela SNR is so large, it's best to use a 135mm lens on your DSLR. To give you an idea of the area of sky it occupies, the Vela SNR would only just fit inside the Southern Cross. *Image below was produced with SkyMap Pro software.*



Name: Pismis 4  
 Type of object: Open cluster  
 Magnitude: 5.9  
 Size: 18.0'  
Position (epoch of date)  
 Right ascension: 8h 35m 21s  
 Declination: -44° 21' 8"  
 Constellation: Vela



vdB-Ha 34  
 Type of object: Open cluster  
Catalog position for epoch J2000.0  
 Right ascension: 08h 31m 18.0s  
 Declination: -44° 29' 00"  
 Constellation: Vela



vdB-Ha 37  
 Type of object: Open cluster  
Catalog position for epoch J2000.0  
 Right ascension: 08h 36m 18.0s  
 Declination: -42° 45' 00"  
 Constellation: Vela

## Esperance Stonehenge



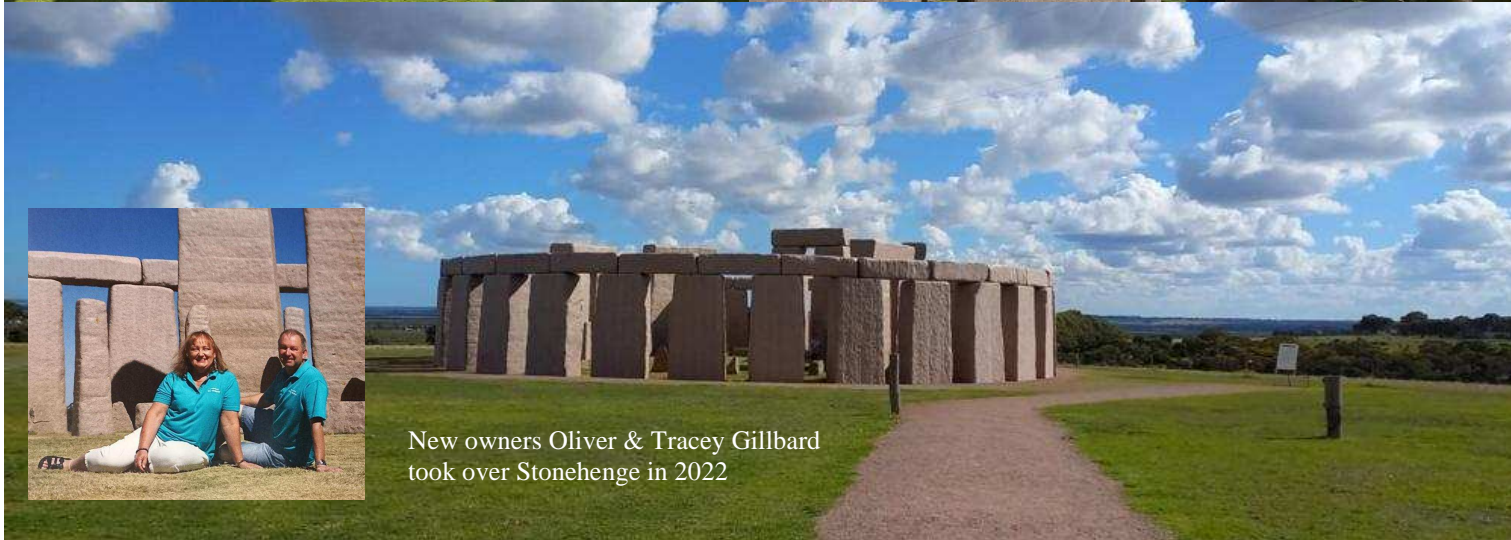
At Esperance WA you can find a replica of the original Stonehenge as it looked in 1950BC. The 137 stones were quarried just across the road from the replica. The central 10 largest stones weigh more than 40 tons each and the 5 large lintels which sit on top of these weigh 18 tons each. The 30 upright stones which make up the outer circle weigh 28 tons each and the 30 lintels which sit on top weigh 7 tons each. The smooth finish on the stones was achieved with high pressure flame which melted the surface, giving the stones an aged appearance.

It's amazing that it exists at all, as in 2009 after the stones were cut and to be moved to a site at Margaret River, the money ran out and the project was cancelled. A year later Kim & Jillian Beale purchased the stones and began moving them to their dairy farm across the road from the quarry. But first they had set about to prepare the site and poured 120 cubic metres of concrete for the foundation for the stones to sit on. The position of the stones was calculated by Sorensen Architecture in Margaret River, WA. Like the original, the replica is aligned to summer and winter solstices. The stonework was completed on 26th October 2011 and a small café, information centre, and car park were also built.



The full-size replica weighs 2500 tons, cost 5 million dollars to build, and was put on the market for sale in 2020, when the Beales retired. The dairy farm was sold to a neighbour and Stonehenge replica and surrounding buildings were sold to a local caravan park owner, who is hoping to add a caravan park next to the replica and also hold weddings, solstice festivals, and astrophotography events.

Top image is a panorama from inside Esperance Stonehenge.

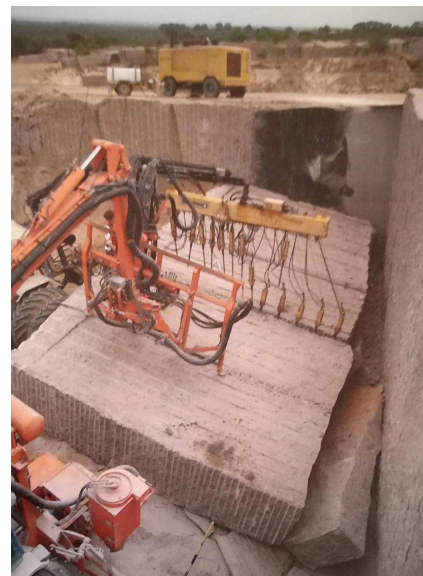
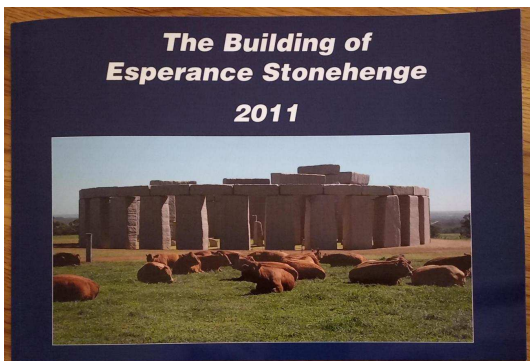


New owners Oliver & Tracey Gillbard took over Stonehenge in 2022

The town of Esperance has many old buildings, port, marine time museum, national park where you can find the some of the most beautiful beaches and interesting landscapes.

We purchased a well put-together booklet on the building of Esperance Stonehenge for 20 dollars. The book took you through a journey, from cutting the large stones, to preparing the foundations, then moving and positioning the stones. Images below are from the booklet.

*Story and above photos by Greg Walton*



Below Right - Winter Solstice Sunset 2012, 21st June

Below Left - Summer Solstice Sunrise 2011, 22nd December

## Giving new life to a junked Takahashi Equatorial mount.

I like fixing things and this is an account of a fun little project about 7 years ago.

Browsing on eBay I came across a strange looking grimey grey painted metal device wrapped in electrical wiring, that had two features I immediately recognized. It had two knobs, one silver and one dark green ball shaped, hmmm I thought, by the looks of those knobs that thing is a **Takahashi** something or other.

Lots of internet searching led me to discovering: this object was the main section of a 1982 **Takahashi Space Boy** equatorial mount. Missing counterweight, RA hand-control box, tripod and a very important part - the base of the mount. I messaged the seller who had all sorts of scrap stuff listed, rubbish to me anyway, and asked if I could "buy it now" as it was listed as auction only. He replied yes, so \$50 with post and it was mine. The image, right, with the mount on the grey carpet background is as seen on eBay. Upon receiving the mount I found it was fitted with the optional polar-scope and RA motor drive, nice.

Disassembly of the mount revealed: bent RA and Dec shafts, just where the knobs attach, so an easy fix; split thrust washer on the RA worm drive; badly bent threaded end on the counterweight shaft, that's the end that screws into the mount; and for the rest just very dirty and rusted chrome. The polar-scope was filthy but undamaged.

The RA motor would not work, so that part was checked out by a friend and found to have a failed proprietary chip. After much deliberation, I discovered that a Skywatcher RA motor was found to fit perfectly.

Disassembled the polar-scope, noting and marking all alignment screw positions, cleaned all the lenses and polar reticule and reassembled.

Washed all mount metal parts in petrol, degreased, straightened the bent items, made a new thrust washer, buffed all chrome and alloy parts. Found original UV protected metal during disassembly to colour match and painted in a perfect colour match -Toyota touch up paint "Morning Dew", a very appropriate name for after a night of viewing. Reassembled the mount with fresh grease, adjusted the RA and Dec worms.

Very satisfying, but not much use if I can't attach it to a tripod or set latitude.

The **Takahashi** website has lots of documentation, so found a PDF brochure containing elevation of the base. Took that page, put it into a program found on the internet that scaled it to full size, and printed it for a template.

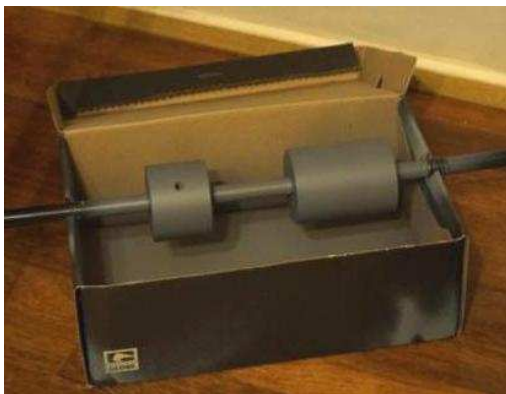
A 9" angle grinder, welder, a couple clamps and a scrap of 6mm wall thickness 150mm X 50mm steel tubing, all provided material and means to make the base. An 8mm x 1.25 tap and 10mm X 1.5 tap and couple of drills and a few stainless cap head screws, primer and topcoat and it was done.







A great mate machined two new counterweights.



Space Boy mounts have a characteristic decal and I eventually came across the owner of another Space Boy mount and asked him to email me an image of the "Space Boy" logo. I took this image file to a local sign writer to replicate the decal. He produced a dozen decals and two made the mount complete.

The Takahashi Spaceboy now happily rides on a Takahashi pier extension atop a Takahashi tripod.

*By Mark Hillen*



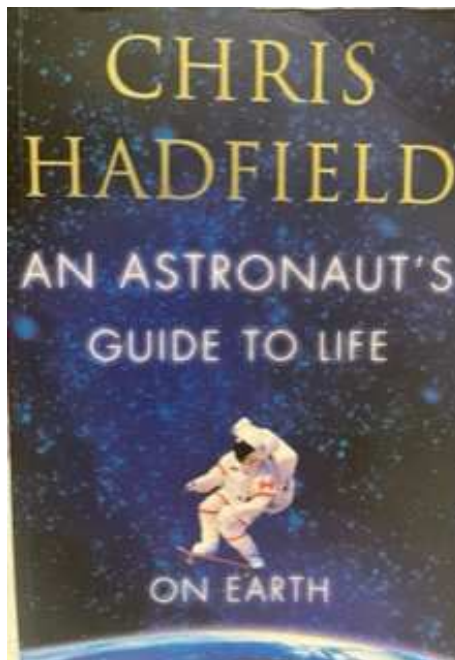
## SOYUZ TMA 19M - Descent Module *By Julie McErlain*

In May this year during a lengthy pilgrimage overseas, I was very excited to get close-up and personal with the Soyuz TMA 19M module on display in the London Science Museum in their very splendid "Exploring Space Gallery." Signs also display its name "Tim Peake's Spacecraft" as it is the actual spacecraft that took British astronaut Tim Peake with America's Tim Kopra and Russia's Yuri Malenchenko up to the International Space Station in 2015, returning safely to Earth the following year. It is the first flown, human-rated spacecraft to be acquired by the UK. It certainly was great to see inside the cramped set-up, and touch the outer surface, charred by its return through the atmosphere at 17,000 mph with temperatures of more than 1500C degrees. The parachute on display also added a sense of reality, and other objects such as the Apollo 10 Command Module simulator console was inspiring. In the Soviet space program, the Soyuz series of spacecraft has made more than 140 flights, can transport 3 cosmonauts and limited cargo and can orbit the Earth for 4.2 days in autonomous flight. The translation of SOYUZ is Union – interesting; and it still is the only means of ferrying humans to and from the ISS, capable of subtle manoeuvring, rendezvousing and docking with other spacecraft. The ISS has at least one SOYUZ spacecraft docked at all times for up to 200 days at a time, for use as an escape craft. Sadly we could only look in from outside – there certainly was little space for 3 people, but great to see and touch the real thing!



On a rainy day in Ireland in a bookshop in the small town of Athy, this book jumped up at me – Nerida loves it too! Chris Hadfield spent years training as an astronaut, and logged up 4000 hours in space, was commander of the ISS and remembered for playing his guitar, his videos of life in space, and his photography. His story here is of an often unconventional philosophy learned through years of training and survival – “prepare for the worst and enjoy every moment of it.” When I finish it I’ll put it into our Library – it’s a terrific read!

Julie McErlain



# MEMBERS GALLERY



## Right -

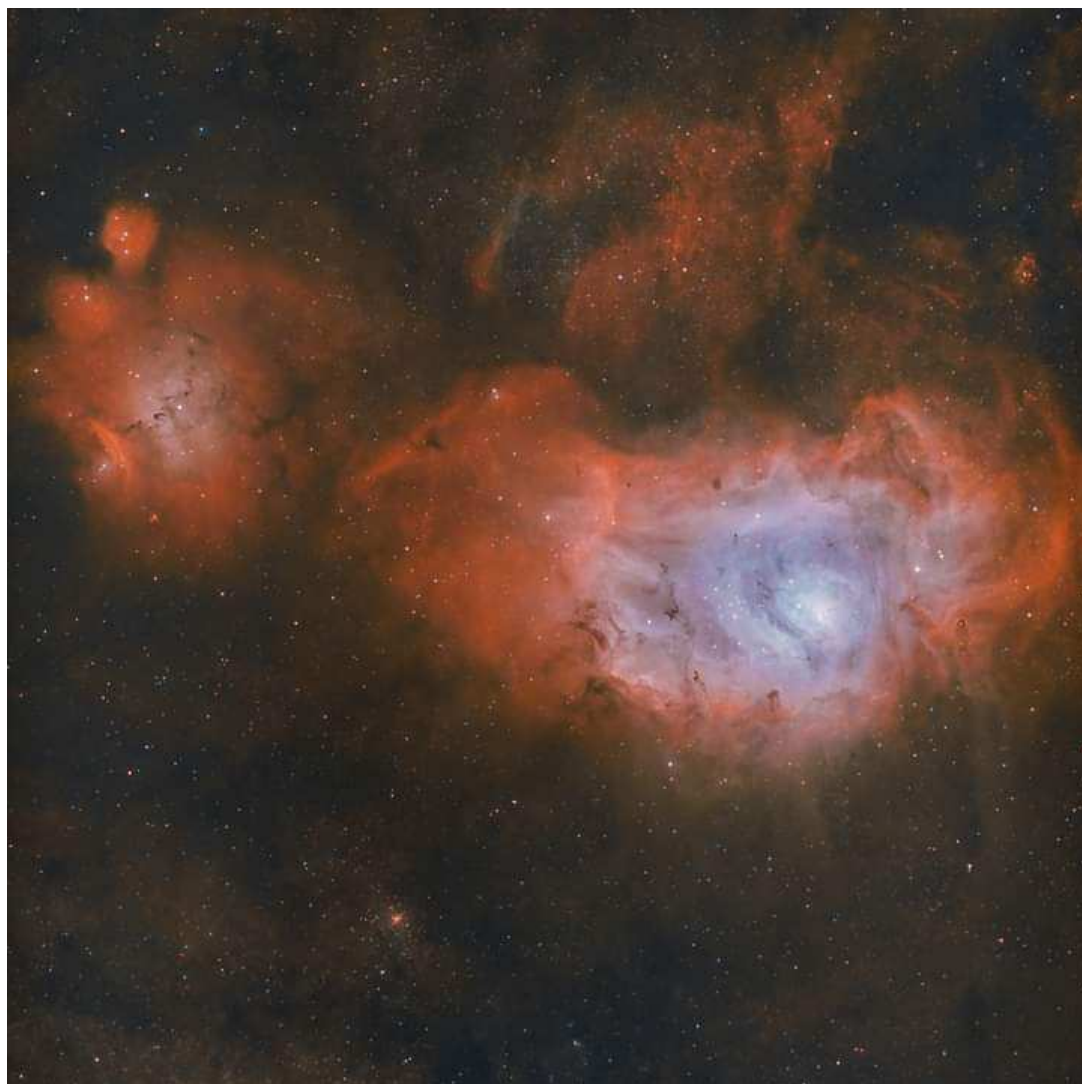
M8 The Lagoon Nebula

Yes it's common and done to death but I like it.

4.5 hours of 300 minute subs using the Optolong L-ultimate filter ZWO ASI 533mc Pro and the Askar FRA300 drizzled then resampled after processing using Astropixel processor for stacking and Pixinsight for processing.

Used the Skywatcher EQ3 for more portability than the EQ6. It worked well after some regreasing and adding some bearings, not perfect but pretty good for what it is. Acquired using the ASIAIR Pro.

*By Nik Axaris*



## Right -

Photo from last night 6/8/23 - from an undisclosed location. On an impromptu aurora chase with MPAS members David Rolfe, Nerida Langcake.

The Aurora presentation was underwhelming, but this fireball jumped through one of the frames, creating a cool image, with its reflection recorded as well.

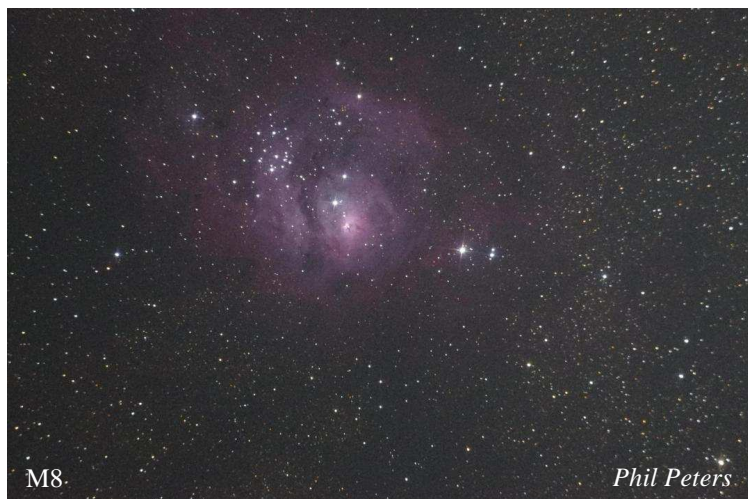
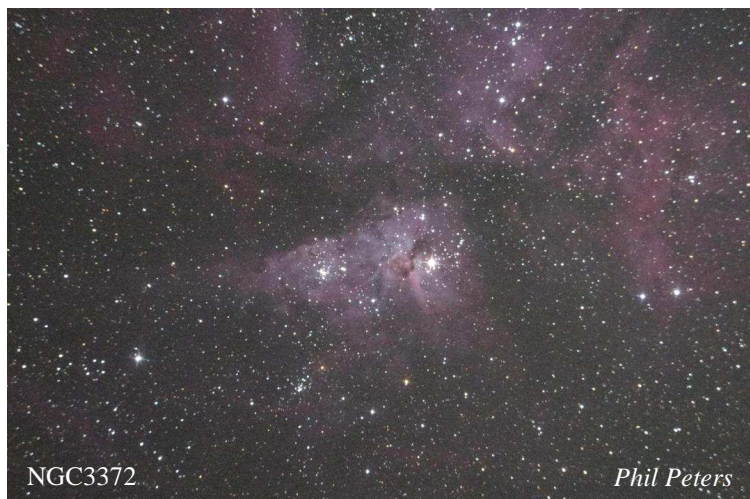
Quick time-lapse as well...

<https://vimeo.com/851926156?share=copy>

*By Jamie Pole*



**Below** - Nebulas imaged with 8-inch Newtonian on EQ6 mount in the MPAS observatory with Pentax Kr, by *Phil Peters*

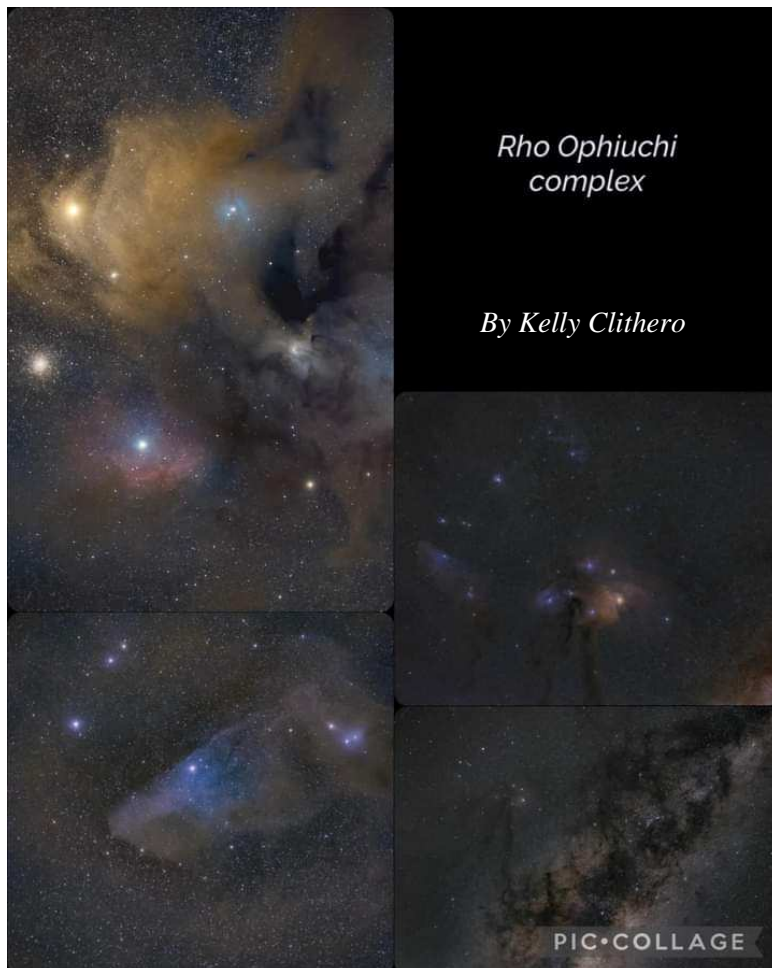
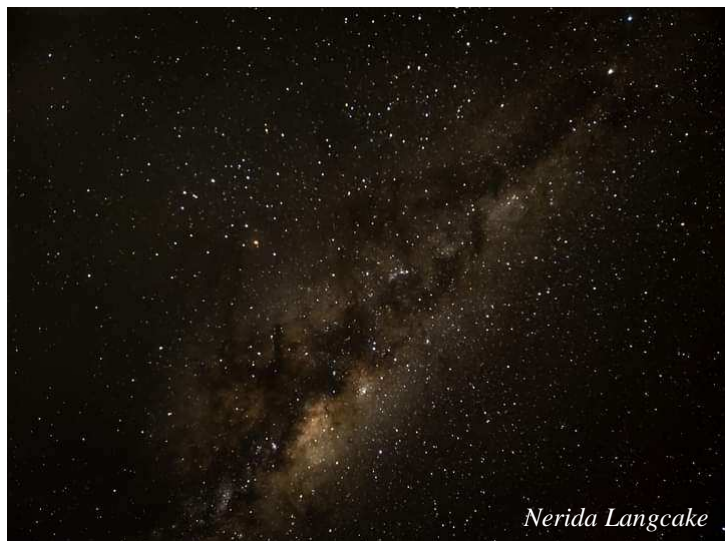


**Right** - I love the Rho Ophiuchi complex. Olympus 10ii with a 50mm Laowa lens. iOptron tracker. ISO800 f3.2 40s exposures. Lights, darks and bias frames. Stacked in DSS, then processed in PI and LR.

*By Kelly Clitheroe*

**Below** - When the cloud was on the horizon obscuring any aurora imaging opportunities at that moment, I pointed my phone straight up instead...

*By Nerida Langcake*



# MO PHO CHALLENGE

Chris Kostokanellis



## Astro Mo Pho challenge for July is Globular clusters.

My entry for this Mo's Pho: 47 Tuc and the Small Magellanic Cloud. This is a mosaic of 4 frames, each of which is just 15 one-minute subs, taken last night. Equipment used: William Optics ZS73, ASI294MC, AM5 mount, AsiAir. Processed in PixInsight. *By Guido Tack*



**Far right top** - The first one is M22 in Sagittarius. 22 minutes of exposure.

**Far right below** - The second photo has on the right M9 in Ophiuchus, and the small orange cluster on the left is NGC 6342. 34 minutes of exposure. Both with my 80mm refractor, ASI 294 MC Pro camera and processed in Siril. *By Chris Kostokanellis*

**Below** - NGC5139 - Omega Centauri. Imaged last night before the clouds rolled in at my place. TS Optics 70mm with 0.7flat/red 10x120s subs. Darks only. Processed in PI and LR. *By Kelly Clithero*



**Below** - 4 Globular clusters imaged with 8-inch Newtonian on EQ6 mount in the MPAS observatory with Pentax Kr, by *Phil Peters*

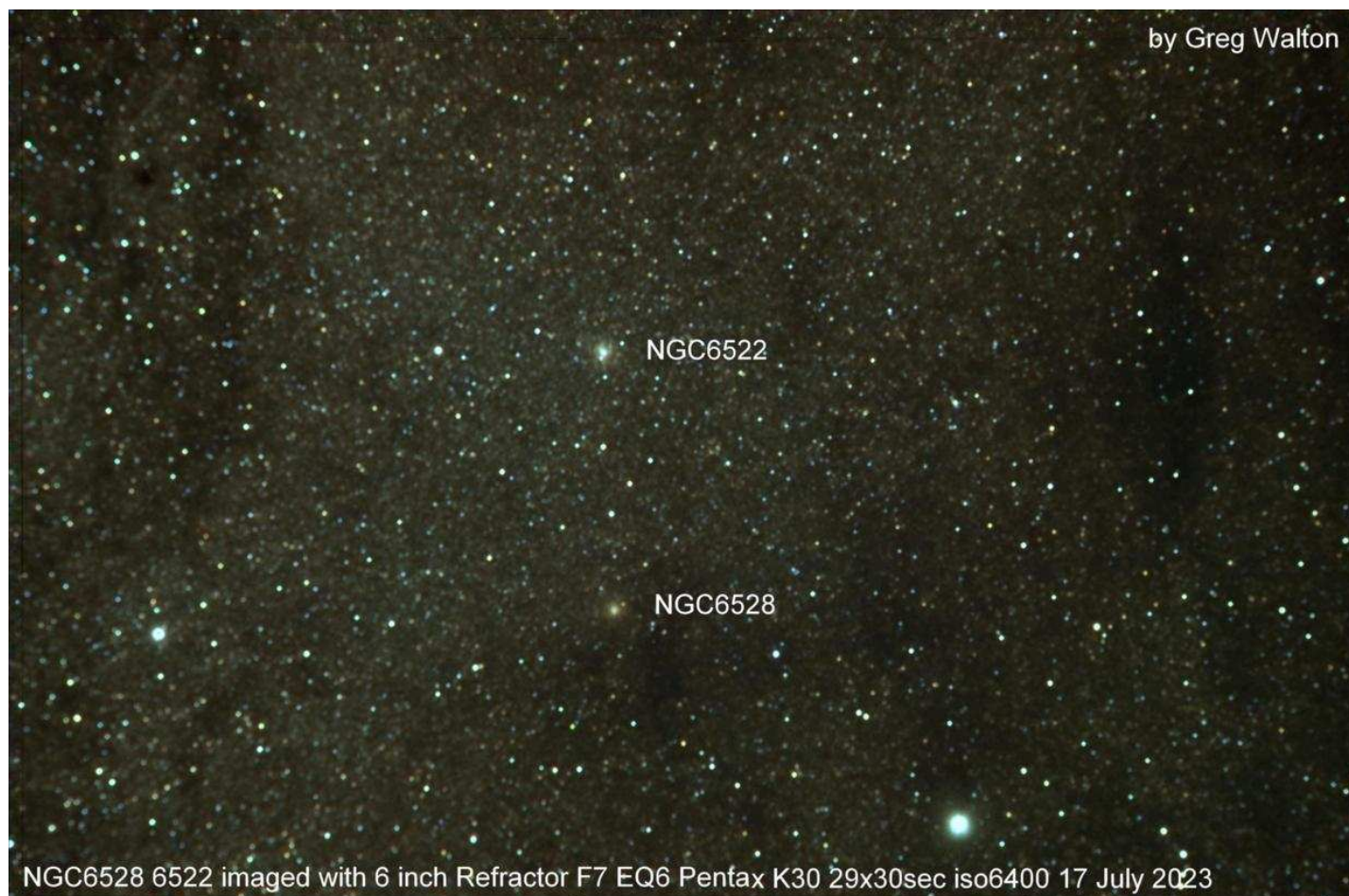


**Below** - 6 Globular clusters imaged with 350mm Meade on EQ8 mount & Pentax K30 in the MPAS observatory, by *Greg Walton*





4 Globular clusters imaged with the 127mm refractor on EQ6 mount & Pentax K30 in the MPAS observatory, by Greg Walton



## Astro Mo Pho challenge for August is Planetary Nebulas.

Planetary Nebulae: These 3 images were all taken at the Briars on Tuesday evening with my ASI 294 mc Pro, Optolong L-Extreme filter, on the 127mm refractor. Exposure times were limited to 60 sec due to poor tracking and no guiding, and many frames were unusable, but mission accomplished. *By Chris Kostokanellis*

**Right** - M57 Ring Nebula 3 minutes of exposure

**Far right** - NGC 7293 Helix Nebula 9 minutes

**Below** - NGC 6302 Bug Nebula 20 minutes



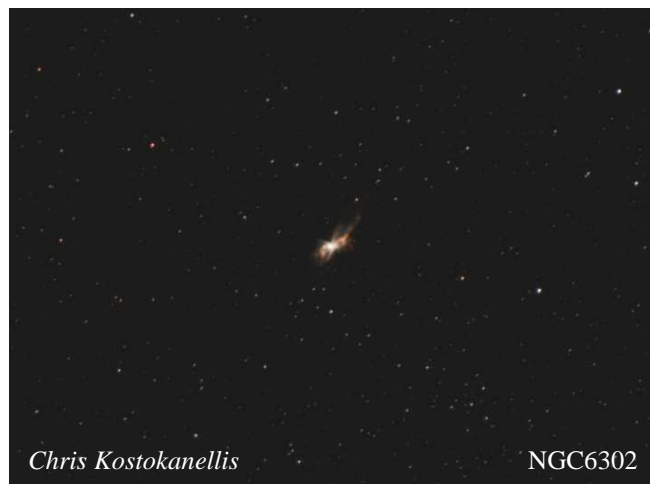
*Chris Kostokanellis*

M57



*Chris Kostokanellis*

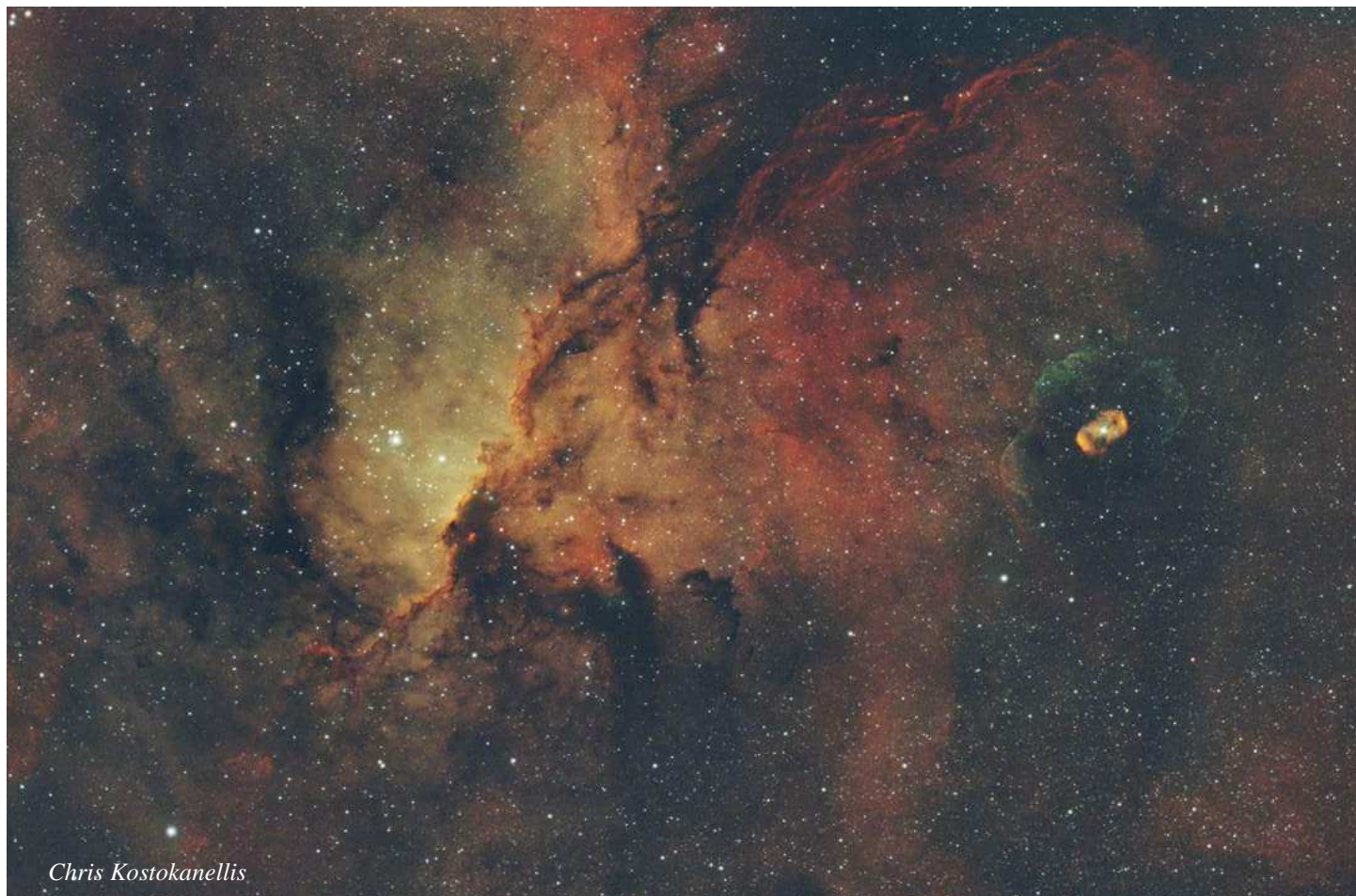
Helix NGC7293



*Chris Kostokanellis*

NGC6302

**Below** - My Fighting Dragons with the Dragon's egg. Sharpstar CF80, 0.8 Flattener / Reducer, Optolong L-Extreme, ASI294MC PRO. 12 x 5 minute subs, processed in Siril. *By Chris Kostokanellis*



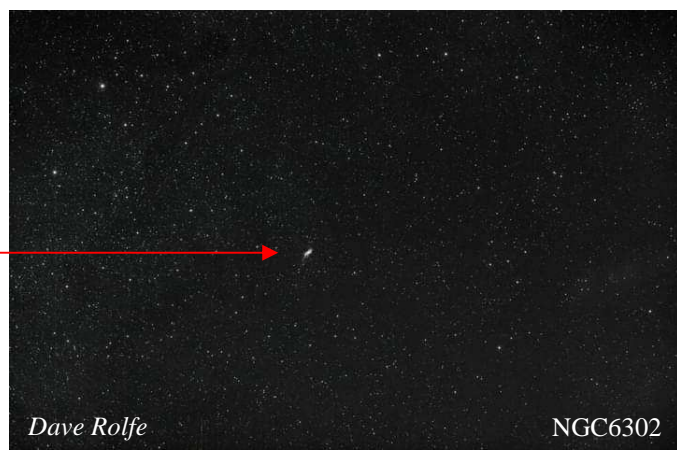
*Chris Kostokanellis*



**Below 2 images** - Helix Nebula., a planetary nebula, is a challenge with wide-field scope and full frame DLSR however that is part of the fun. Redcat 51 Telescope with Canon 6D, 45 x 90 sec subs. Very cropped in image at right. *By Chris Black*



**Below 2 images** - NGC6302 - Think I had a bug on the telescope last night! Colour cropped version and full frame. 10 minutes of exposure with each of the LRGB filters, *by Dave Rolfe*

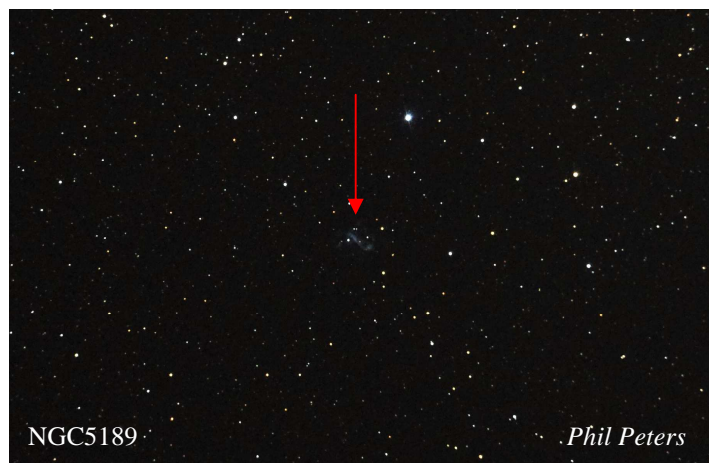
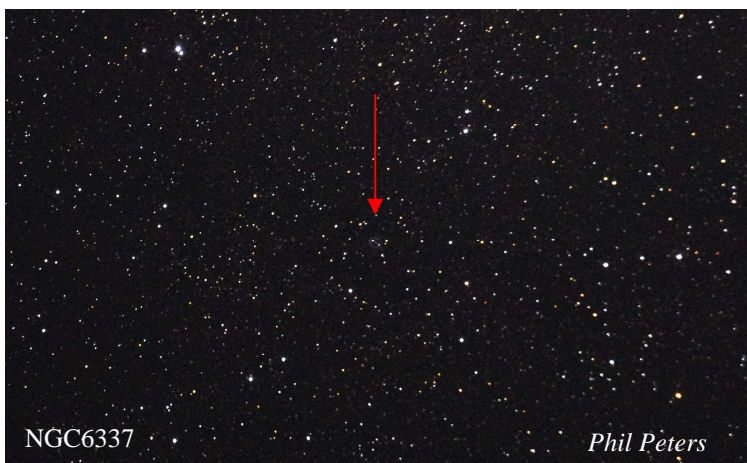
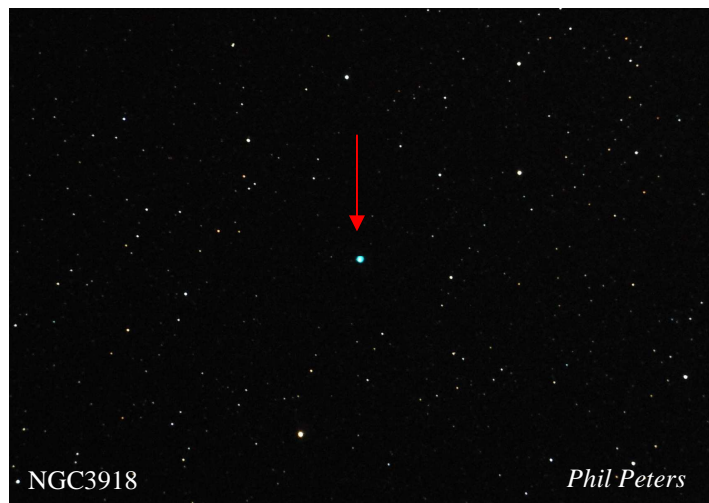


**3 Planetary nebulas** imaged with 8 inch Newtonian on EQ6 mount in the MPAS observatory with Pentax Kr, *by Phil Peters*

**Right** - NGC3818 Blue Planetary nebula. This bright blue planetary near the Southern Cross is a very popular target and surprisingly easy to find without a computerized telescope.

**Below right** - NGC5189 Spiral - This irregular shape planetary looks more like a spiral galaxy and is found within Musca near the Coal Sack below the Southern Cross.

**Below** - NGC6337 The Cheerio Nebula - This winter object has a perfect ring and is found within the tail of the Scorpion.



**Right -**  
NGC2438 in M46 open star cluster.

*By Kelly Clitheroe*



NGC2438 - M46

*Kelly Clitheroe*

**Right -**  
M27.

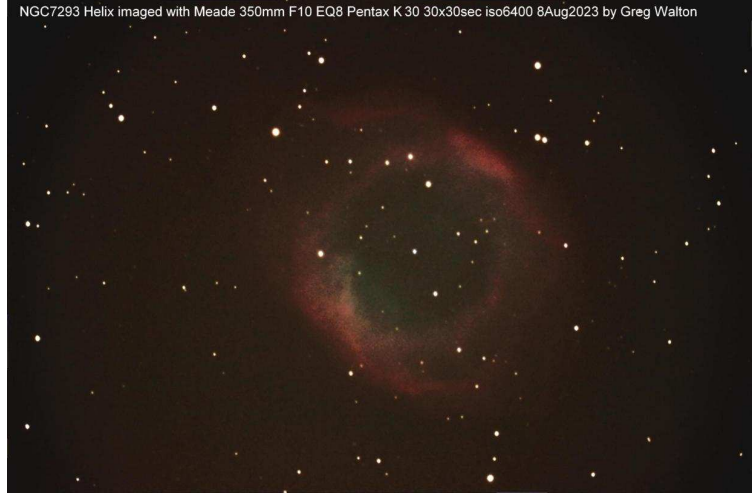
*By Kelly Clitheroe*



M27

*Kelly Clitheroe*

**Below** - Selection of Planetary Nebulas imaged with 350mm Meade on EQ8 & 127mm refractor on EQ6 mount with Pentax K30 in the MPAS observatory on the 8th & 9th August 2023, by *Greg Walton*



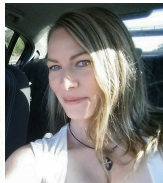
SOCIETY INFORMATION



Peter Skilton



Chris Kostokanellis



Nerida Langcake



Jamie Pole



Anders Hamilton



Trevor Hand



Guido Tack



Simon Hamm



Phil Peters




Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

**President:** Peter Skilton  
**Vice President:** Chris Kostokanellis  
**Committee:** Anders Hamilton, Trevor Hand, Guido Tack, Simon Hamm and Phil Peters  
**Secretary:** Nerida Langcake  
**Treasurer:** Jamie Pole  
**Web master:** Guido Tack  
**Scorpius editor:** Greg Walton  
**Librarian:** Fred Crump & Lara Conway

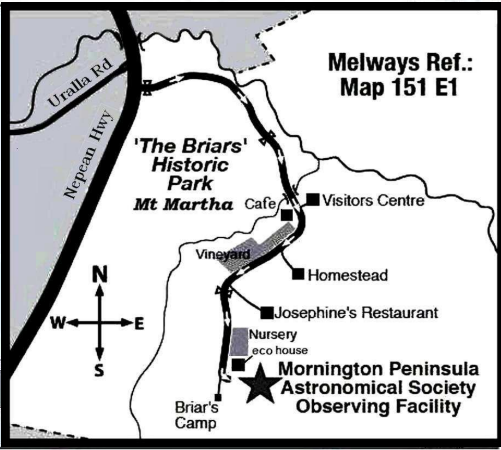
SOCIETY MEETINGS

**Meeting Venue:** MPAS Astronomy Centre  
 The Briars, 450 Nepean Hwy, Mt Martha  
 (Melways ref. 151/E1)  
**Society meetings:** Don Leggett Astronomy Centre  
 8pm on the third Wednesday of the month  
 (except December)  
 (See map at right & Below)



**For addition details:**  
 Internet: [www.mpas.asn.au](http://www.mpas.asn.au)  
 email: [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au)

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



Fred Crump

LIBRARY

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 or Lara Conway

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](mailto: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:**  
 Internet: [www.mpas.asn.au](http://www.mpas.asn.au)  
 email: [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au)

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



Members please write a story about your astronomy experiences and add some pictures. Send them to the editor: Greg Walton [gwpas@gmail.com](mailto:gwpas@gmail.com)  
 MPAS newsletters online - [https://drive.google.com/folderview?id=0BvykxzZG19g\\_SUNmZVhkZTFGWTA](https://drive.google.com/folderview?id=0BvykxzZG19g_SUNmZVhkZTFGWTA)

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