

Cover image - Horse Nebula B33 with Flame nebula NGC2023

Taken with Skywatcher ED72 with 0.85 reducer/corrector
ASIAIR Pro, ZWO 294mc pro, 90 minutes at 600 secs each

By Nik Axaris



SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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The Mornington Peninsula Astronomical Society (formerly the Astronomical Society of Frankston) was founded in 1969 with the aim of fostering the study and understanding of astronomy by amateurs and promoting the hobby of amateur astronomy to the general community at all levels.

The Society holds a focused general meeting each month for the exchange of ideas and information. Regular public and private observing nights are arranged to observe currently available celestial objects and phenomena. In addition, the Society encourages the service of its members for on-site or off-site educational presentations and observing nights for schools and community groups.



Nik Axaris

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

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

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Mornington Peninsula Astronomical Society

SOCIETY NEWS



Our COVIDSafe Plan is in place, and therefore there are rules we must all follow when visiting the site.

Here are the basic rules which are required and are mandatory for all MPAS Members:

- 1) **BOOKING.** No site entry unless you have a confirmed email booking (welcome@mpas.asn.au) showing date/times, name and phone of all persons.
- 2) **SICK.** If slightly unwell or with cold/flu symptoms **DO NOT** enter the site any further. Go home.
- 3) **SIZE.** Max of 100 people outdoors. Max of 50 people or 1 per 2m² (plus speaker/usher) in auditorium, and other areas as sign-posted.
- 4) **CHECK-IN.** All attendees must check-in using the MPAS QR code (or log book as last resort) upon arrival to assist with contact tracing.
- 5) **CLEANLINESS.** All touched surfaces and handles must be carefully cleaned after your use. Wipes and cleaning agents provided. Cleaning checklist on site.
- 6) **DISTANCING.** Min 1.5 metres between people anywhere on-site.
- 7) **HANDS.** Wash often. Never assume someone else has already cleaned the surface. Hand sanitiser provided.
- 8) **MASKS.** Masks are optional. (**NOTE** - These rules may change at anytime.)

Here's an update of confirmed outreach events for your diary. All are in need of member help with telescopes/speakers as shown. Freshly updated entries are ** asterisked. Please enter them in your diary and post back here for those where you can help. Those who did the presenter training last year are encouraged to help with the speaker role. *Regards, Peter Skilton*

MAY

- Wednesday 5th, 6:45pm, St. Augustines Primary at Camp Manyung, Sunnyside Rd, Mt.Eliza. 75 Year 5 pupils. Speaker Peter Skilton.
- Friday 7th, 8pm Briars. Public stargazing night. Speaker Manfred Berger. 50 people anticipated.
- **Tuesday 18th, 6:30pm at Parkdale Secondary College, Warren Rd, Parkdale. 170 Year 7 pupils booked. Speaker Peter Skilton. Telescopes are to be set up again in the adjacent Waratah Ave public park to the south of the school grounds. Help from members is needed as we need 10 telescopes, especially from members living in the vicinity.
- **Tuesday 25th, 7:30pm at Mount Erin Secondary College, Robinsons Rd, Frankston. 70 Year 9 pupils booked. Speaker Peter Skilton.
- Wednesday 26th, 7pm Briars. Public Lunar Eclipse night. No speaker. Attendance won't be by bookings.
- Friday 28th, 8pm Briars. Scout/Guides/Cubs night. Speaker Peter Skilton & Katherine McCoy. 25 scouts booked so far.

JUNE

- Friday 4th, 8pm Briars. Public stargazing night. Speaker Trevor Hand. 50 people anticipated.

JULY

- Friday 2nd, 8pm Briars. Public stargazing night. Speaker needed.
- Friday 30th, 8pm Briars. Scout/Guides/Cubs night. Speaker Peter Skilton & duet with another member. No bookings yet.

AUGUST

- **Thursday 5th, 7:30pm Naranga Senior College at Merricks Lodge, 3670 Frankston-Flinders Road, Merricks. 50 Year 10 pupils booked. Speaker needed.
- Friday 6th, 8pm Briars. Public stargazing night. Speaker Trevor Hand. 50 people anticipated.
- **Tuesday 10th, 6:30pm. Baden Powell Joeys at their Scout Hall, NE corner Baden Powell Drive and Humphries Rd, Frankston. 50 cubs anticipated. Speaker needed.
- **Wednesday 11th, 6:30pm. Mornington Cub Scouts at the Briars. 50 scouts anticipated. Speaker needed.
- Friday 20th, 8pm Briars. Public stargazing night for National Science Week. Speaker TBD.

SEPTEMBER

- Friday 3rd, 8pm Briars. Public stargazing night. Speaker needed.
- **Tuesday 14th, 7:30pm at Mount Erin Secondary College, Robinsons Rd, Frankston. 70 Year 9 pupils booked. Speaker Katherine McCoy & Peter Skilton.

OCTOBER

- Friday 1st, 8pm Briars. Public stargazing night. Speaker Trevor Hand. 50 people anticipated.
- Friday 29th, 8pm Briars. Scout/Guides/Cubs night. Speaker Peter Skilton. No bookings yet.

NOVEMBER

- Friday 5th, 8pm Briars. Public stargazing night. Speaker needed.

DECEMBER

- Friday 3rd, 8pm Briars. Public stargazing night. Speaker Trevor Hand. 50 people anticipated.

School viewing night March 5th - Last night the society visited Iluka Retreat in Shoreham for 75 Year 5 pupils from Essex Heights Primary School in Mt. Waverley on camp. Conditions were dry and a little cool, but there again Autumn had arrived. After some fun with the technology set up, Peter Skilton gave the solar system talk indoors, fielding many questions from the floor, before the group moved outside to the adjacent grassy hill near the Pipehenge on the site. Set up with their telescopes in the dark were Fred Crump, Nerida Langcake, Chris Kostokanellis, Ben Claringbold and Anders Hamilton. Most of the evening had been clouded over, however, by the time the kids moved outside, half the sky had cleared into patches, enabling the prominent sky objects to be seen, including Mars, the Orion Nebula, and a bright magnitude -2.5 passover of the International Space Station that occurred on cue between the south west and south east. The instruments were then shuttled back to the car park on a small tractor buggy, making the job of packing up in the dark just that little bit easier. View of the hill looking south during the talk. Photo by Nerida Langcake. For the keen of eyesight, you can see the hemispherical Pipehenge on the far right of the photo, silhouetted against the cloud. *Regards, Peter Skilton*



Photo Nerida Langcake

Lots of fun at Iluka retreat. The kids were all very excited and very keen. They swarmed the telescopes like locusts. "Can I please see what it's like to look through a telescope?" "Ooooooh! Cooooo!" *Regards, Chris Kostokanellis.*

It's always nice to receive feedback from the schools we visit as part of our long-standing outreach efforts, especially when they have a clear inspirational impact on the kids. This one came in today from the Year 5 Co-ordinator of the Primary school that we visited at Iluka Retreat at Shoreham earlier in the month. Take a bow all those involved that evening. *Peter*

"Hello! My name is Moira Lennon and I am one of the Year 5 teachers at Essex Heights. We absolutely loved your presentation to the kiddos at Iluka Retreat on Tuesday, March 2nd. The children are still talking about it. Thank you for such a fantastic experience. Do you have a mailing address? We would like to send something your way!"

Public viewing Night March 6th - The March public stargazing night at the Briars last Friday had 50 in attendance in total. Trevor Hand spoke about the Mars Rovers inside, building upon an earlier one of his presentations that had been updated with all the activity on Mars in recent times. Meanwhile outside, awaiting the almost complete cloud cover to clear, were Nerida Langcake, Guido Tack, Jamie Pole, David & Jamie Rolfe, Alan Predjak, Peter Skilton, Fred Crump & Bonnie Cass, Jason Heath, Ben Claringbold and Simon Hamm. Alas, it did not clear, but nevertheless the visitors enjoyed the talk and a tour of the instruments in the observatory. *Regards, Peter Skilton*

Society meeting March 17th - For those of you who are not yet subscribed (it's free) to the MPAS YouTube channel, the March meeting has been uploaded for viewing. It features a talk about Destination Mars by Trevor Hand. Inline image

If subscribed, you should be notified of this automatically, all being well with YouTube of course.

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/UCm6XOkIcIft4y0XRBPXuw>

or watch it on the MPAS site once it's refreshed for this month:

<https://www.mpas.asn.au/meeting-recordings/>

The video is not posted to e-scorpius as it is too large.

Regards, Peter Skilton



School viewing night 7:30pm March 18th - Thursday saw 33 Year 5 girls, plus teachers, from Strathcona Girls Grammar on camp at 3670 Frankston-Flinders Road, Merricks Lodge, with stargazing on the agenda for after dinner. Conditions were somewhat cloudy, though this mostly cleared after an hour, and was warm enough for short sleeves, with no marauding mosquitoes. Mars and the Moon were mostly obscured unfortunately, but nevertheless there was plenty else to see outside of Solar System objects. Peter Skilton gave the talk indoors, with Fred's Apollo 11 poster on easel display at the front. Then the group moved outdoors for some viewing through the telescopes, though somewhat hampered by a bright security light pointed in just the wrong direction. Outdoors operating the telescopes were Chris Kostokanellis, Ben Claringbold, Fred Crump, Guido Tack and Nerida Langcake. *Regards, Peter Skilton*

Members BBQ & working bee March 20th - seen about 20 members in attendances. Lawns were cut by new member, Anders cut up dead wattle tree, whipper snipping near dam.

Members Point Leo field trip May 21st - MPAS celebrated the 2021 autumnal equinox with a field trip to Point Leo, focusing on a much neglected member of Sol's family of planets: Earth. 12:00 (once known as noon, or midday) on Sunday, 21 March was considered a more convenient time than the official time of the equinox (8:36 p.m. on the previous day). Astronomy conjures up images of devotees glued to their telescopes at all hours of the night, as they wait for the nocturnal cloud cover to disperse and reveal something of interest.

Well, we turned that idea on its head and ventured forth in cloudy conditions, ready to un-Earth some of our own planet's secrets, under the guidance of Mike Cleeland. Mike gave the curious a background talk to whet the appetite before inviting them to accompany him down to the beach and onto areas of lava, laid down in bygone ages. Initially billed as a fossil hunt, somehow rubies and sapphires had become part of the lure by this time. Memories of telescope viewing were brought back as, instead of being assured that what we were looking at resembled a butterfly, we were assured that this black dot and that black dot were actually **Kaersutite** and that glint was **Feldspar**. Pretty soon, the search was on for the perfectly-shaped hexagon on the cracked ground we were walking on. Perhaps we thought of Mars, when we discovered signs of iron oxide left behind by water seepage through those cracks. We found one layer of lava which had flowed over a previous one. This was a lava blister. But was this an example of pillow lava, perhaps?



Photo Nerida Langcake

Before heading back to base, there was a photo opportunity, near where there was evidence that the beach may have been in (relatively) recent Roman times. The threat of rain turned out to be empty, but the day was full of interest. Those devoted to nocturnal viewing of more remote objects could – perhaps – benefit from the continuing cloud cover and have an early night. *Regards Ian Argent*

Very interesting tour of a place I have passed many times but never been to. Strange I have lived on the Mornington Peninsula since 1984 and not been to Point Leo. Saw organ pipe basaltic rock end on. Lots of iron oxide seams that filled shrinkage cracks in the volcanic basalt. Areas of decayed basalt that makes clay. Large crystals in the basalt of **Feldspar** and **Kaersutite**. *See right*

Black crystals is **Kersanite**, and the organ pipes end on are the 5, 6, and 7 sided columns of basalt seen end on as walking on certain areas of the reef. *See below*

Iron oxide on volcanic basalt. *See below right*

The group photo is near the surf clubhouse. Behind Mike about 1.5 meters above the sand is a layer of fist size beach pebbles indicating the beach around 2000 years ago. *See Top of page*



The geologist Mike Cleeland was a veritable mine of information. *Report & photos By Mark Hillen*



The Point Leo geology class was so informative and I had no idea that we were walking on what was once lava and the nice geometrical shapes and formations that were beneath our feet, a landscape that many people visit, play, and walk on has so many hidden gems (literally) and history. Learning about the different types of crystals and their formation was intriguing as well as finding samples amongst the rocks. In addition, all the cool fossils that Mike bought along to show us was breathtaking especially the first Dinosaur ever to be found in Australia on the 7th of May 1903. I'm going to join MPAS. *Kind Regards Laura*

Apart from the main show on geology and fossils, the buzz of interest on meteorites was wonderful for us as an astronomical society. So many youngsters, and the less young, came to or call for the magnet (I had a neodymium and one weaker one). This was an educational hands-on scientific playtime indeed. To differentiate from iron oxide that Mike was talking about it was confirmed by the guru Peter Skilton that once iron becomes rust it loses its magneticity. So we aimed for a mass of unoxidised iron.

About the ‘fusion crust’ to look for, in relatively fresh meteorites, a particularly great video on meteorites “HOW TO TELL” and much much more is <https://naturalhistory.si.edu/education/teaching-resources/earth-science/astrogeology-meteorites-and-spacecraft-missions>

Additionally, 3 initial tests to ID <http://meteorite-identification.com/streak.html>

For percentage of those containing iron and other info <https://solarsystem.nasa.gov/asteroids-comets-and-meteors/meteors-and-meteorites/in-depth/>

And for Victoria, MPAS meeting with Bill Birch 2019 11 20 <https://youtu.be/gKwARbRBAFk>

Just for entertainment, a few personal notes... A buzz also sparked across the Pacific. A 7 y.o. space cadet in California was on a video call with me, holding up his newly-acquired dinosaur flash cards, when Mike and John turned up with their collections. Mike very kindly showed him “the very 1st dinosaur bone discovered in Australia” and “the world’s 1st 3D printing model of a dinosaur - Koolasuchus cleelendi” that was named after Mike. There were Wows that will reverberate to a school there.

Secondly, beware of magnets! The weak magnet dangling from my backpack attached itself on someone’s car and scratched it. Oh I’m ever remorseful.

Lastly, I was heart broken when learning that some of my chums Jamie & Landon Rolfe, Jasmine Pole, and Ethan Lewis were not there. However it was great to meet with other members and some from the public. A special magnetic pull for me was the many impressive scientific juniors such as the one explaining to us about neodymium magnets, the many that found interesting rocks and sea life, and the amazing Acacia I walked with and listened raptly to. It was like this group could readily form a Zest for Science club.

Report & Photos By Sky Murphy

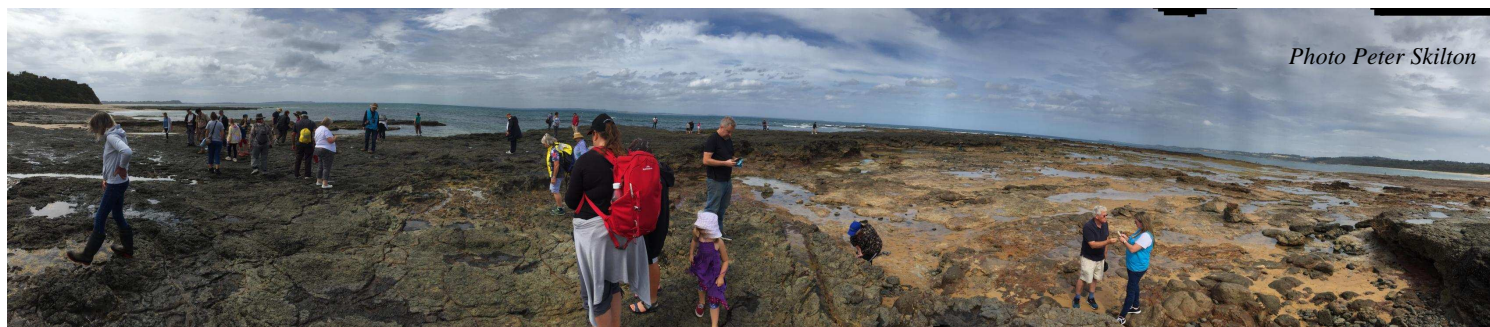


Photo Peter Skilton

Sunday, March 21st was a wonderful, fun adventure in the field for 49 members and others who had booked and assembled at Point Leo near the Surf Life Saving Club.

At noon, the Moon and Sun were aligned in such a way that trillions of tonnes of water were gravitationally pulled towards them to give low tide at Point Leo. This exposed extensive rock shelves that are ordinarily submerged and invisible from the beach.

Originally, this field trip came about from an idea shared by Sky Murphy, but it took about a year in the planning thanks to the pandemic causing a couple of reschedulings along the way. And even for this event, there was last minute hidden drama as we had to apply unexpectedly to the State Government for it as a Tier 3 Public COVIDSafe Event, with no decision back until only a day or so beforehand.

Point Leo foreshore is managed by an independent authority that is quite separate from Local Government or State Government departments, and they insisted a week beforehand on an approved Tier 3 plan, even for an assembly of 50 or fewer participants, when it's normally reserved for 1,000. So, we dutifully and hurriedly applied and received the go-ahead, fortunately.

Our geologist Guide, Mike Cleeland, studied at the University of Melbourne and was born and raised on Phillip Island and, these days, works as an Education Officer at Bunurong Coast Education in Inverloch. He regularly participates throughout the year in dinosaur digs at various Victorian and interstate sites, and even has a fossil discovery named after him.

It was quite a windy Sunday, about 25 Celsius and overcast with threatening to shower. Nevertheless, with ozone depletion it had a UV index of 7 so it was a case of hats and sunscreen as an advisory. A few participants found that out the hard way.

We could readily identify the geologist in our midst because he was dressed just like Indiana Jones, for those who remember those adventure movies from last century. All that was needed was the background theme music to perfect the image. But there was also another hidden geologist lurking in the crowd with her young son and his friend, and who works as a research assistant at Monash University with a palaeontologist there.

Prior to the walk along the rock shelves, Mike showed some Victorian fossils and volcanic samples, and some specimens brought along by John Cleverdon from his private collection.

The exposed rock shelves were formed by repeated lava flows from past volcanic activity in the last ca. 60 million years. Rather than coming from a typical cone-shaped mountain-like volcano caldera that spews out ash and lava bombs in all directions, these slowly oozed lava from long cracks in the ground, much like you see in Hawaii today. So, you'd be able to outrun them. Eventually the lava turns into basalt rock and then turns into clay in the presence of water. On the other hand, any granite rock wears down into sand. It was easy to see the multiple layers of lava laid over each with time, once you knew what to look for.

Peppered in some of the cracks were beautiful black crystal prisms about the size of a thumbnail. These titanium and iron minerals were formed 60-80km deep, where the temperature and pressure are high enough in the outer mantle of the Earth, and are called Kaersutite. These Kaersutite gems are transported quickly to the surface in eruptions, and this speed means they don't have time to melt from their original crystal form. There were also delicate, golden feldspar crystals on show in some of the basalt. As far as I know, no sapphires or rubies were found this time, but I could be wrong.

There were many hexagonal, pentagonal, and heptagonal lava organ pipes visible on the surface of the basalt, with it cracked into these shapes that were about 50-100 cm across. Some of the cracks looked as if they'd been caulked with a brown, rusty rock in-between, and indeed this was iron oxide mixed with water at the time, where water had seeped into shrinkage cracks in the cooled lava.

There were circular lava blisters visible also, some a few metres across. When molten lava flows over a water pool, it vapourises it instantly into steam. This creates a 3-dimensional bubble of expanding lava that solidifies to give a blister. With weathering down over time, this bubble just appears as a 2-dimensional circular feature instead.

Astronomers will be familiar with this concept from so-called planetary nebulae, which our Sun will become one day in the distant future.

These are 3-D bubbles of expelled material, but when viewed from afar just look 2-D as a lovely colourful ring of material around the remnant

white dwarf star that has been left behind after the original star has shed much of its material into space.

We didn't find any fossils at Pt. Leo, but we found that as not being too surprising because the lava is too hot for organic material to survive and be preserved. There are, however, other sites around the Mornington Peninsula where fossils were readily preserved.

The sandy cliffs all along the Pt. Leo stretch of beach have evidence of past human occupation dating back many thousand of years, with new evidence becoming visible after it's exposed due to fresh erosion.

At the start of the adventure, Mike offered the many kids present a \$100 prize if they found any left-handed spiral seashells. After much eager searching, only right-handed ones were discovered. Better luck next time.

After 2.5 hours clambering over rocks, exploring, many in the group assembled for a group photo before departing. I noticed a budding young scientist, Acacia Cottrill, in the photo, proudly holding some of her interesting discoveries from the day.

For those interested in seeing what dinosaurs discovered in Victoria look like, the 2021 calendar of dinosaurs is still available from Monash University and pictures many of these strange-looking creatures each year. Proceeds go towards funding future dinosaurs digs, and back orders are possible if existing stock is gone. <https://shop.monash.edu/dinosaur-dreaming-2021-calendar.html>

I believe the volcanic activity across Victoria comes about because the Pacific tectonic plate is pushing itself under the eastern side of the Australia plate, raising the temperature and pressure in this subduction zone, so that bubbles or hot rock emerge just like when you heat pancake mix in a frying pan. The most recent volcanic eruptions in Victoria were only about 5,000 years ago, and more are possible in the future. So, having a bushfire evacuation plan for home is one thing, but how many of us have a volcanic eruption evacuation plan ready?

Peter Skilton



Photos by Nerida Langcake



Public viewing Night April 2nd - The public stargazing night went ahead as planned on Good Friday at The Briars, with lovely clear skies and pleasant conditions amenable to short sleeves. In total we had 54 people on site outdoors, appropriately distanced, though not that many indoors in the auditorium, plus some returns to look through the telescopes from the month before was clouds out. Trevor Hand gave a new talk about Interstellar Visitors, while outside operating the telescopes, marshalling and helping out were Jamie Pole, Dave, Jamie & Landon Rolfe, Mark Stephens, Anders Hamilton, Gavin Curnow, Fred Crump, Bonnie Cass, John Cleverdon, Marj Cleverdon, Guido Tack, Nerida Langcake, Peter Skilton, Alan Predjak, Simon Hamm, Jason Heath, Mike Smith, Greg Walton, Lara Conway, Rohan Baumann, Bob Heale, Ben Claringbold, Michael Scott and Vijay & Akshaj Kulkarni.
Regards, Peter Skilton



Beautiful clear sky at our public stargazing event last night. The moon is rising in the background, with some telescopes setup for viewing the sky. Image taken by MPAS Member, Guido Tack, with iPhone 11 Pro.

Observatory and Telescope Training night 17th April - Had a good turn out with everyone getting a change to operate the telescopes. The sky was not perfect with clouds passing through from time to time but at least there was no Moon. We got some good practice chasing the clear parts of the sky, finding many deep sky objects. *Greg Walton*

Members BBQ & Working Bee April 24th – We had some new members ready to help out at our monthly working bee, but unfortunately as soon as we pulled out the mower it started to rain. We quickly got the mower away in the garden shed before it pelted down, so then it was time to find “inside” jobs to do. Emma Gilmour made the kitchen sparkle while her husband Brad swept the auditorium, vacuumed the kitchen and vestibule areas, then swept the observatory and warm room. Meanwhile, Chris Kirk got to work cleaning the toilet room and mopping it, then dusted and removed the cobwebs in all buildings. Jacqui Duffee took over mopping the auditorium from Nerida, then wiped down all surface areas. Pascal Janvier swept the kitchen and vestibule, then wiped down everything at the merchandise counter, etc. By the time the rain stopped all the buildings had shiny interiors and it was time to setup the chairs and tables in preparation for the BBQ. Jamie Pole made up for not having enough dessert last month by providing hot apple pies & cream, pavlovas and cheesecakes. Pascal brought along some amazing mini pastries/ macarons that he imports (see photo below) in lots of different varieties such as mini eclairs and mini cheesecakes. After the rain cleared, the sun was shining from behind the clouds in the east and it looked a-maze-ing with just one bright orange puffy cloud amongst the dark clouds (see photo below)! For some reason the automated email reminder didn’t go out, and so we only had about 20 members come for the BBQ, hopefully we will see more next time! *Regards, Nerida Langcake*



Photo Nerida Langcake

★ New Members Welcome ★

*Liliane Yarak
 Brad and Emma Gilmour
 Ray Johnson
 Jan Mulcahy
 Rob and Gemma Moule
 Vijay and Akshaj Kulkarni
 Pascal Janvier
 Robert, Narelle and Emily Bowcher
 Ajay, K and V Maharaj
 Laura Bellomia and Luciana Durso
 Scott Quinton*

MPAS SUBSCRIPTIONS 2021

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 2021 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 2021 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.

Click on the link for further information - https://drive.google.com/file/d/0ByvkxzZG19g_NXZ4cWxHbERTdEE/view?usp=sharing

SOCIETY FEES

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

See more options on-line



Full Member	\$50
Pensioner	\$45
Family	\$65
Family Pensioner	\$60
\$30.00 joining fee	

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

CALENDAR		May / 2021					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
30 Saturn below the Moon midnight	31 Saturn above the Moon midnight					1	
2	3	4 Last Quarter Saturn left of the Moon 2am	5 Jupiter below the Moon 2am	6 Eta-Aquarids dawn meteor shower peak on 6th & 7th	7 Public night 8pm Neptune left Moon dawn	8 Comet 7P/Pons Winnecke near Eta Aquilae 5am 50degs above horizon North	
9 Mothers Day	10	11	12 New Moon Moon at 406,512km	13 Venus left of a thin crescent Moon low on evening horizon	14 Mercury left of thin crescent Moon low on evening horizon	15	
16 Mars above the Moon evening	17	18 School viewing night 6:30pm at Parkdale Secondary College	19 Society Meeting 8pm	20 First Quarter	21	22 Members Night & W/Bee 4pm	
23	24	25 School viewing night 7:30pm at Mount Erin Secondary College	26 Full Moon Lunar Eclipse 9pm Moon at 357,311km	27	28 Scout Guides Cubs night 8pm	29 Venus and Mercury 0.5 deg separation just after sunset	

Monthly Events

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

Public night - 8pm to 10pm on the 7th @ the Briars

Society Meeting - 8pm to 10pm on the 19th @ the Briars

Working bee & Members Night BBQ - 4pm on the 22nd @ the Briars

Lunar Eclipse night with Public viewing - 7pm to 10pm on the 26th @ the Briars

Scout/Guides/Cubs night - 8pm to 10pm on the 28th @ the Briars

CALENDAR		June / 2021					Red Days indicate School Holidays
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
		1 Jupiter left of the Moon midnight	2 Last Quarter	3	4 Public night 8pm	5 Comet 7P/Pons Winnecke near Delta Capricorni	
6	7	8 Moon at 406,228km	9	10 New Moon	11	12 Venus above the Moon evening	
13 Mars above the Moon evening	14 Queens Birthday	15 Comet 7P/Pons Winnecke near Helix Nebula	16 Society Meeting 8pm	17 Southern cross at high point above horizon evening	18 First Quarter	19 Members Night Solstice Party 4pm	
20	21 Solstice Shortest day	22	23 Moon at 359,956km	24 Scorpius Deadline	25 Full Moon	26 Comet 7P/Pons Winnecke near Fomalhaut	
27 Saturn left of the Moon 10pm	28 Jupiter below the Moon 10pm	29	30				

Monthly Events

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

Public night - 8pm to 10pm on the 4th @ the Briars

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

Solstice party & Members Night BBQ - 4pm on the 19th @ the Briars

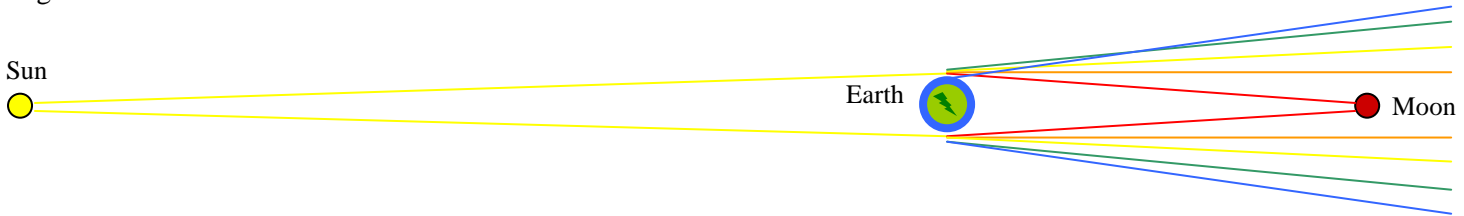
THE BRIARS SKY

By Greg Walton



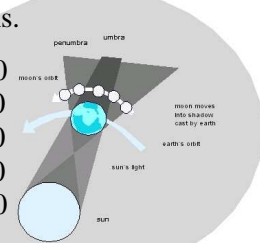
Totality Lunar Eclipse on the evening of 26th May. Looking to the east the Moon will be 19 degrees above the horizon when the penumbra eclipse starts at 6:50pm which is not easily noticed. You will see a slight darkening starting on the right hand side and slowly moving across the moon. At 7:48pm the Umbra earth shadow starts to move across the Moon till 9:12pm then the Moon will be eclipsed in totality for only 10 minutes. Then the Umbra earth's shadow will start to recede from the Moon finishing at 10:50pm. By then the penumbra eclipse will have started to recede from the Moon finishing at 11:48pm.

During the total eclipse the Moon should appear a rusty red. This is caused by the Earth's atmosphere. When sun light passes through the Earth's atmosphere, the light is refracted (bent) into the colours of the rainbow, but only the red light can bend far enough to strike the Earth's surface.



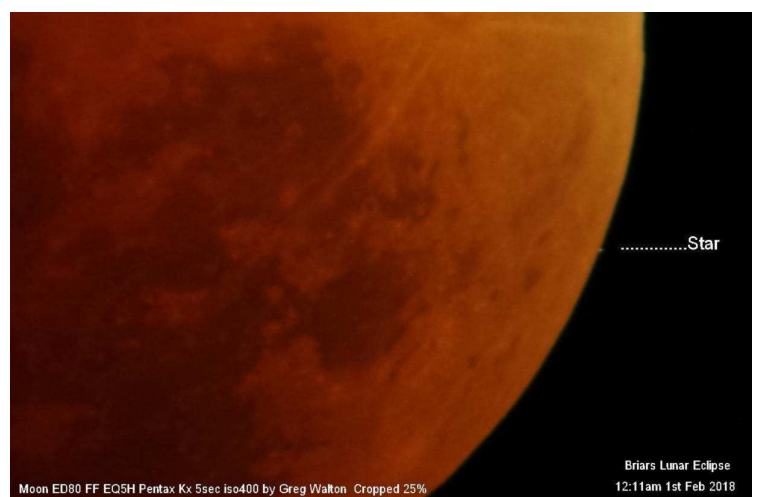
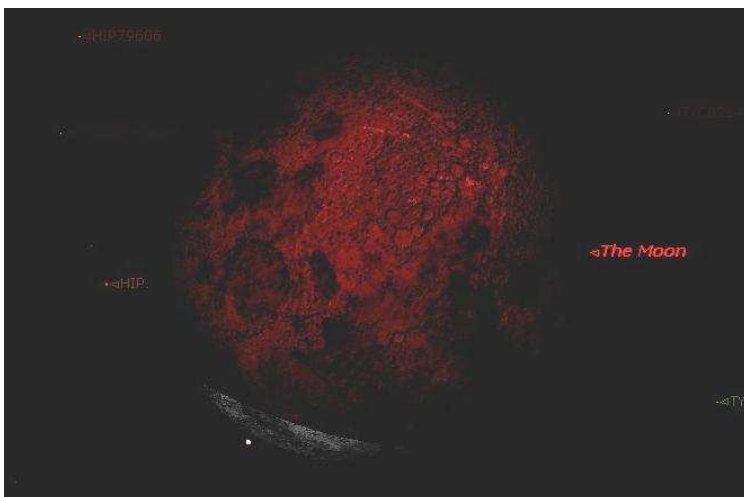
Many members will be imaging this event, so be mindful not to stand in front of anyone's camera or telescope. Also, best to ask if you can look through a telescope, as it may have a camera attached instead of an eyepiece. Imaging this event has its challenges as the brightness of the Moon varies enormously. At first your shutter speeds will be very short, but as Umbra shadow crosses the Moon you will find yourself constantly increasing your shutter speed. If the Moon is large enough to fill most of the camera's sensor, then you may be able to set the camera to automatic exposure. Also it's far better to use an equatorial mount as aligning and imaging is hard work and you will spend most of your time looking at the camera instead of enjoying this extraordinary event. A good idea is to set up your equipment the month before and experiment. This will help you select the best telescope and camera settings. There is always a good chance we get clouded out, but luckily we will have another chance later in the year on the 19th November. What you learn this time will help in the future. On the night I should be on hand at the Briars site making sure that all the telescopes are running and to help with any questions.

Manual settings guide for DSLR with 80mm f10 telescope.	Penumbra eclipse start	6:50pm to 7:50pm	1/60 to 1/4sec	iso100
	Umbra eclipse start	7:50pm to 8:50pm	1/4 to 2sec	iso400
	Totality	8:50pm to 9:30pm	2 to 4sec	iso400
	Umbra eclipse recedes	9:30pm to 10:50pm	2 to 1/4sec	iso400
	Penumbra eclipse recedes	10:50pm to 11:50pm	1/4 to 1/60 sec	iso100



MPAS Briars Lunar eclipse 4 April 2015 by Greg Walton

The full Moon is normally way too bright to be able to see any stars which are nearby. But at totality the background sky will be dark enough that you can see stars and if you are lucky enough you could watch a star moving between the mountains on the Moon. Not long after totality at 9:37pm a 6.5 magnitude star will pass very close to the bottom edge of the Moon, see image below left. Below right, I took this image in 2018 with a star beside the Moon.



It flew! Mars helicopter takes to the air!

The Mars helicopter – named Ingenuity – successfully flew for the first time in the thin air of Mars early in the day on April 20. It was the first powered, guided flight on another planet. Expected to follow are a handful of other test flights over a month-long campaign that aims to show that aerial exploration is feasible in Mars' atmosphere, which is about 1/100 the thickness of Earth's atmosphere.

Ingenuity's flight preparation process has been slow and cautious, in part because the 1.8 kg helicopter made the journey to Mars in a folded configuration. It was tucked inside the rover's body behind a protective shield. But after the rover dropped that shield and drove to the airfield, the helicopter's personnel ordered the device to unpack and slowly unfold itself. Then, Perseverance had to set Ingenuity directly on the Martian surface and drive away, allowing the helicopter's solar panels to begin supporting the aircraft.



*NASA's Ingenuity helicopter rests on the surface of Mars awaiting a software upgrade before it can fly.
Credit: NASA, JPL-Caltech and ASU*



*As the Mars helicopter – Ingenuity – hovered above the surface of Mars, its own navigation camera captured its shadow on the Martian surface.
Image via NASA TV.*

Unlocking and testing Ingenuity's blades marked the last major preparation milestones before the helicopter attempted its first flight. NASA officials tested the blades first at 50 and then at 2,400 revolutions per minute before the helicopter took off.

Due to Ingenuity's success, future red planet missions may commonly include helicopters, which could serve as scouts for rovers and gather data on their own, NASA officials have said. Ingenuity won't gather any data, since the small rotorcraft doesn't carry any scientific instruments. But it will document its upcoming flights with a high-resolution camera. And Perseverance will be watching as well, from a safe distance away. There's even a chance that the rover could record audio of Ingenuity's flights using its two onboard microphones.

After Ingenuity's work is done, Perseverance will begin the main objectives of its own science mission. The six-wheeled robot will hunt for signs of ancient Mars life and collect and cache dozens of samples for future return to Earth.

Lift off! 4 astronauts in Crew-2 mission blast off to ISS

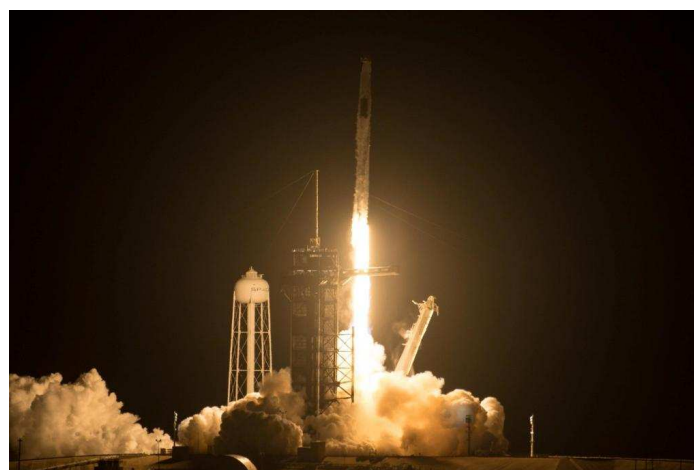
SpaceX's launch of its Crew-2 mission on April 24, 2021, was spectacular by all accounts. The Falcon 9 rocket carrying a Crew Dragon capsule lit up the predawn skies, and riding aboard the Dragon for the launch was four veteran astronauts who docked autonomously to the forward port of the station's Harmony module on the ISS about 24 hours after launch.

The Crew Dragon capsule is named Endeavour. It first carried NASA astronauts Bob Behnken and Doug Hurley to and from the space station last year for the Demo-2 test flight. The mission will also be the second flight for the first stage booster, which previously ferried the Crew-1 astronauts to the space station last year.

The Crew-2 mission is the second of six crewed missions NASA and SpaceX will fly as part of the agency's Commercial Crew Program.

This mission has several firsts, including:

- First commercial crew mission to fly two international partners.
- First commercial crew handover between astronauts on the space station as Crew-1 and Crew-2 astronauts will spend about five days together on station before Crew-1 returns to Earth.
- First reuse of the Crew Dragon spacecraft and Falcon 9 rocket on a crew mission - Crew Dragon Endeavour flew the historic Demo-2 mission and the Falcon 9 flew astronauts on the Crew-1 mission.
- First time two commercial crew spacecraft will be docked to station at the same time.



A SpaceX Falcon 9 rocket carrying the company's Crew Dragon spacecraft is launched on NASA's SpaceX Crew-2 mission to the International Space Station with NASA astronauts Shane Kimbrough and Megan McArthur, ESA astronaut Thomas Pesquet, and JAXA astronaut Akihiko Hoshide onboard. Credits: NASA

All Year Sky Chart for mobile devices. By Greg Walton

With so many mobile apps and softwares available, the old fashion paper star chart are almost a thing of the past. But sometime it's handy to have a quick reference to find what's in the sky at a certain time of year. It can be practical when running a go-to telescope that needs a catalogue number to be punched into the hand control. Deep sky objects all have a catalogue number and it's not easy to remember these, even for me after 20 plus years of showing the public the night sky through my telescope.

I have updated the star chart with all the popular visual and astrophotography deep sky objects on one page. The sky chart now has all Messier, Caldwell and other well known objects. You just need to look at the bottom of the page to find the correct season and everything above that section should be in the sky. Anything below -50 degrees never sets if you are viewing from Victoria. Also the bottom of the page -90 degrees is south and the top the page +90 degrees is north. Zodiac constellations are now underlined. NGC numbering system starts at the right hand side with RA zero hours and increasing left, to NGC7840 at RA 24 hours.

I added some of the popular double stars. These star look a bit like a doughnut on the chart and have a letter beside to designate which star it is in a constellation. The most famous is the Double-Double epsilon LYRA next to the bright star Vega, which has 2 double stars that can be viewed together in the eyepiece. When setting up the go-to telescope, I like to align on a double star, as you know you are on the correct star because you can see it's a double. It's also easier to adjust the focus on a camera screen or computer monitor.

Best viewed with a pair of binoculars or finder scope, I added the tilted house C41 near the star Aldebaran in Taurus ... Brocchi's cluster near NGC6802 - which looks like a coat hanger in a low power eyepiece.

For the more experienced I add 57 faint planetary nebulas that visually are a perfect ring, the first is in Grus IC5148 and the second is in Scorpius NGC6337 not far from the Bug nebular NGC6302.

Two of my favourite planetary nebulas which sit in open star cluster M46 & NGC2818

I included the 3 reddest stars. The reddest in the sky is the Garnet star Mu Cephei which can't be seen from Victoria. Second reddest star is Ruby Crucis a carbon burning star near B crux. Third reddest star is 119 Tauri in Taurus 5 degrees south of the Crab nebula M1.

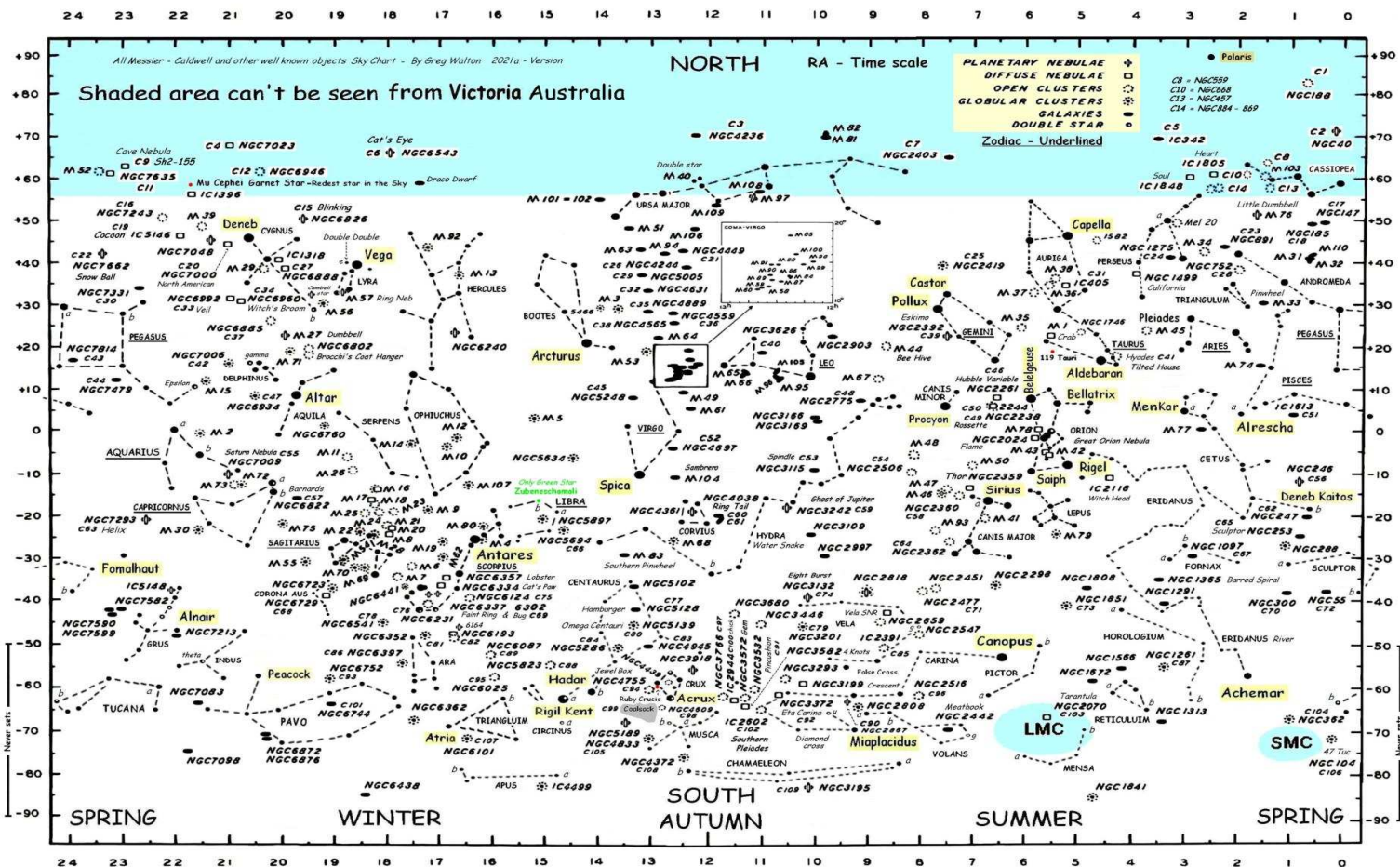
The star **Zubeneschamali** or Beta LIBRA is said to be the only green star in the sky, though professional astronomer claim there can't be any green stars anywhere in the sky. Modern telescopes and eyepiece are often made with glass that has a green colouration, some anti-reflecting coatings also have a green colouration. So next time you are out under the star, check it out and see if it looks at all green.

Green stars - <https://earthsky.org/?p=4453#:~:text=If%2C%20indeed%2C%20Zubeneschamali%20is%20truly,but%20stargazers%20call%20it%20green>

Using the free software **Fotosizer** I was able to convert this star chart into a negative format, so when you open the jpeg image on your mobile device, it will have less impact on your night vision.

I put 4 different versions in a folder on Google drive. Black on white bmp or jpeg & White on black bmp or jpeg.

Down load link- <https://drive.google.com/folderview?id=1b-mdPiG8xbXw2BnhoUjCr8AVIyXNU6hI>



Caldwell objects - This catalogue was produced by Sir Patrick Caldwell Moore 1923-2012, a list of 109 deep sky object that were not included in the Messier catalogue which has the same number of objects 109. The numbering system starts in the north with Caldwell 1 and ends in the south with C109.

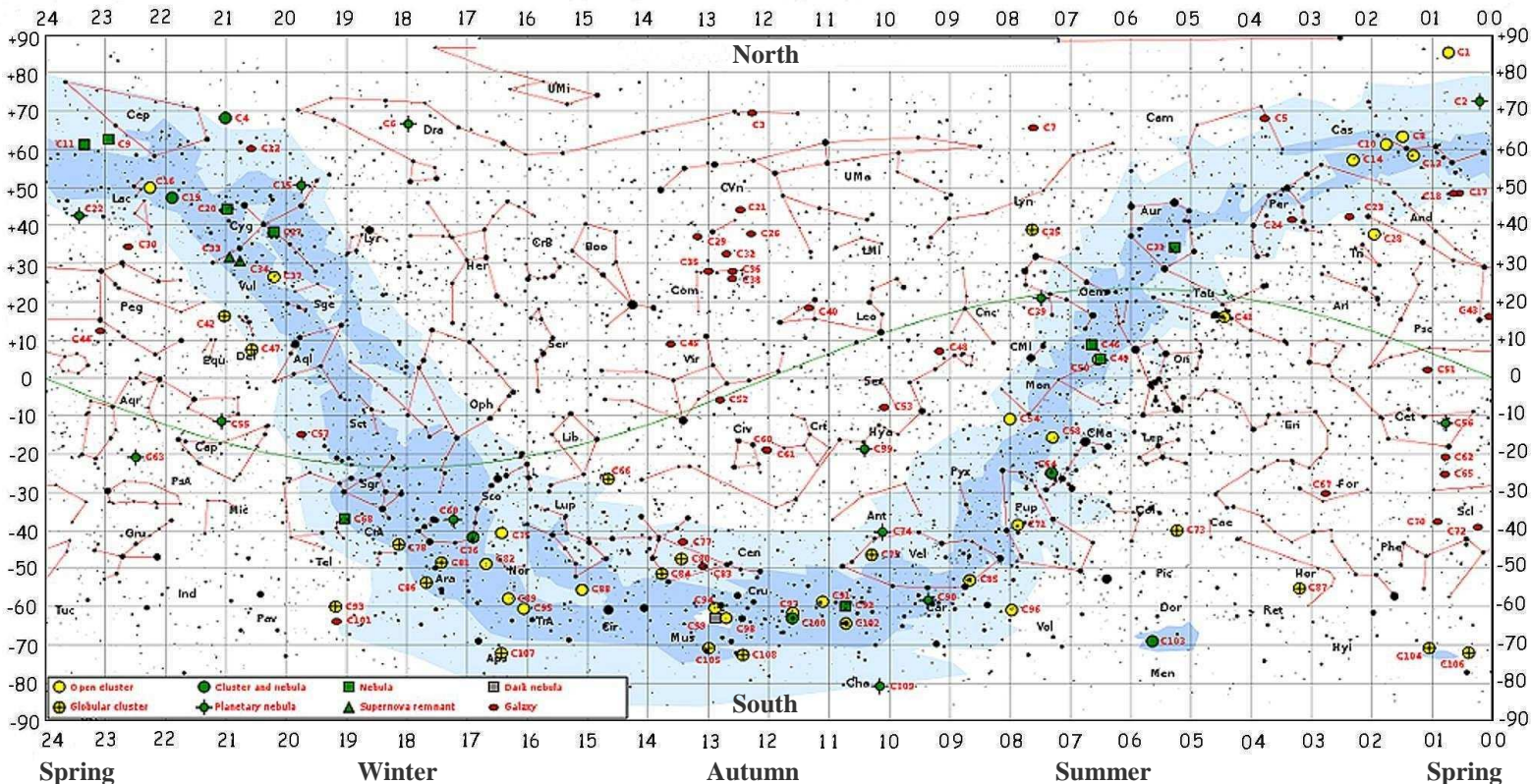


C1 to C14 can't be seen from Victoria, leaving us with 95 excellent deep sky objects. You most likely have already seen a lot of them as they include the best known objects in the southern sky, shaded yellow. C15 only gets to 1 1/2 degrees above the horizon and C16 gets to 2 degrees, making them almost impossible.

Comparison table below - Most Caldwell object have a equivalent NGC or IC number.

1	ngc188 Cepheus Neb	17	ngc147 Galaxy	33	ngc6992 East Veil	49	ngc2238 Rosette neb	65	ngc253 Sculptor	81	ngc6352 Globular	97	ngc3766 Pearl cluster
2	ngc40 Bow-tie Neb	18	ngc185 Galaxy	34	ngc6960 West Veil	50	ngc2244 Rosette open	66	ngc5694 Globular	82	ngc6193 Open Cluster	98	ngc4609 Open Cluster
3	ngc4236 Galaxy	19	IC5146 Cocoon	35	ngc4889 Galaxy	51	IC1613 Galaxy	67	ngc1097 Galaxy	83	ngc4945 edge on Gal	99	Coal sack Dark Nebula
4	ngc7023 Iris Nebula	20	ngc7000 N American	36	ngc4559 Galaxy	52	ngc4697 Galaxy	68	ngc6729 Nebula	84	ngc5286 Globular	100	IC2944 Running chick
5	IC342 Galaxy	21	ngc4449 Galaxy	37	ngc6885 Open cluster	53	ngc3115 Spindle	69	ngc6302 Bug Neb	85	IC2391 Vela cluster	101	ngc6744 Pavo Galaxy
6	ngc6543 Cats Eye	22	ngc7662 Snowball	38	ngc4565 Needle Gal	54	ngc2506 Open Cluster	70	ngc300 Galaxy	86	ngc6397 Globular	102	IC2602 South Pleiades
7	ngc2403 Galaxy	23	ngc891 Galaxy	39	ngc2392 Eskimo	55	ngc7009 Saturn Neb	71	ngc2477 Open Cluster	87	ngc1261 Globular	103	ngc2070 Tarantula
8	ngc559 Open Cluster	24	ngc1275 Perseus A	40	ngc3626 Galaxy	56	ngc246 Planetary	72	ngc55 Whale Gal	88	ngc5823 Open Cluster	104	ngc362 SMC Glob
9	Cepheus Cave Nebula	25	ngc2419 Int Globular	41	Tilt House Hyades	57	ngc6822 Barnard Gal	73	ngc1851 Globular	89	ngc6087 Open Cluster	105	ngc4833 Musca Glob
10	ngc663 Open Cluster	26	ngc4244 Galaxy	42	ngc7006 Globular	58	ngc2360 Open Cluster	74	ngc3132 eight burst	90	ngc2867 Planetary	106	ngc104 47 Tuc
11	ngc7635 Bubble Neb	27	ngc6888 Crescent	43	Ngc7814 Spiral	59	ngc3242 Ghost Jupiter	75	ngc6124 Open Cluster	91	ngc3532 Pincushion	107	ngc6101 Globular
12	ngc6946 Fireworks	28	ngc752 Open	44	ngc7479 Spiral	60	ngc4038 Ring tail	76	ngc6231 Open Cluster	92	ngc3372 Eta Carina	108	ngc4372 Musca Glob
13	ngc457 Owl Cluster	29	ngc5005 Galaxy	45	ngc5248 Spiral	61	ngc4039 Ring tail	77	ngc5128 Hamburger	93	ngc6752 Globular	109	ngc3195 Planetary
14	ngc884 ngc869	30	ngc7331 Galaxy	46	ngc2261 Hubble Neb	62	ngc247 Spiral Gal	78	ngc6541 Globular	94	ngc4755 Jewel Box	Grey shaded area can't be seen from Victoria. Yellow are the most popular objects.	
15	ngc6826 Blinking	31	IC405 Flaming Star	47	ngc6934 Globular	63	ngc7293 Helix Neb	79	ngc3201 Globular	95	ngc6025 Open Cluster		
16	ngc7243 Open Cluster	32	ngc4631 Whale	48	ngc2775 Spiral	64	ngc2362 Mexican	80	ngc5139 Omega Cent	96	ngc2516 Open Cluster		

Below - I found this chart and list of Caldwell Catalogue on the web - <https://www.go-astronomy.com/caldwell-objects.htm>
Also has links to Messier and Herschel 400 catalogue.



The Return of the Snake Valley Star Party *By Dave Rolfe*

Snake Valley star party was run once again on the 10th of April after being postponed earlier in the year with the 'circuit breaker lockdown'. Attendance was down from normal; I estimate there were about 25 people (normally 40-50). Some of this was due to Covid and the poor weather outlook.



This camp runs twice a year and is held at an old internment camp in Snake Valley - about 15 minutes past Ballarat. The facility is now run as a youth camp titled 'Camp Wedgetail', formally called 'Crystal lake' several years ago. Snake Valley astronomy camp has been running from November 2005, originally started by Ken James from the Snake Valley Astronomical Association. Of recent years the camp lost its connection to the SVAA and continued on its own by enthusiastic volunteers.



Anyway, back to this camp. The weather was true to the forecast and clouds came-in on Friday night about 9PM just after everyone had aligned and was preparing for action. The rest of the night was cloudy. Jamie Pole, Jamie Rolfe & I attended for the Saturday night and it was near freezing temperatures and lots of rain. We did get a 30-minute period of viewing in a 'sucker hole' about 11PM on Jamie's tabletop Dobson.

Earlier that evening we had the traditional Saturday night roast dinner and for the rest of the night we sat around roasting marshmallows exchanging stories of what could have been, what will happen if it clears and stories of camps from yesteryear.





Many MPAS members have attended the over the years, I just found a picture of Trevor there in 2006 and it looks like the facilities are very much the same!

The next date is not locked in but should be about the November new moon. There is the option of sharing a cabin (MPAS normally has the 4 bunk cabin next to the field), camping on the field or staying off-site. The event suits beginners, visual and astrophotographers and is likely the most laid back astronomy camp you will find!

If anyone is interested in coming, drop me a line or visit snakevalleyastrocamps.org

Tallangatta Astronomical society

While travelling around the snowy mountains, Pia and I stayed at the Tallangatta caravan park on the banks of lake Hume. I remembered there was a new astronomical society in town and thought we best check it out. Google gave us 2 addresses: the first was a paddock on the main road, the second was the local show grounds where we found a dome observatory in a security fence and a shipping container; it all looked very neat and tidy. I think it must have been moved for some reason. Anyway you can camp at the showgrounds which is handy if you're into astronomy.

By Greg Walton



Removing the IR Infer Red filter from a DSLR.

I've decided I'm going to try Mod my DSLR to remove the red filter. Going to DIY, following a You Tube video. It's a cheap one I picked up from Cash Converters for about \$100, so no big loss if I stuff it up. (It'll be an excuse to get a better one) Anybody want to talk me out of it? *Chris Kostokanellis*

If you're successful I'll have a go with my old camera. *Ben Claringbold*

I won't talk you out of it, in fact I'd like to watch :-) and if it goes well I'll try to mod my (2nd hand) 700D. *Cheers Guido Tack*

Chris, I've no direct experience, but some of the earlier models (350D, 400D etc) were apparently quite easy. Some of the newer ones, were apparently more of a challenge, but still not impossible (some patience and clean-up required - so some fine work). *Jamie Pole.*

I'll try document it here, (minus any inappropriate language that week likely result from the attempt). My victim is a Canon 550D. I think this one falls in the "Not too difficult" category. *Cheers Chris Kostokanellis.*

And if it all works out well, Chris, have you thought about moving on to become a cataract surgeon in your spare time? *Regards, Peter Skilton*

I'm practising my techniques on my dog's cataracts before I touch the camera. *Cheers Chris Kostokanellis..*

Hi Chris, I've done this with a 60d. You need to work out if the camera is going to be for Astro only or if you want to be able to use lenses. By removing the filter you change the effective optical path length and your lenses will not focus to infinity and for other lengths it will be out, you would need to replace the glass. If you're dedicating it to using with a telescope this isn't an issue. The 550d has 2 filters I believe, I would recommend removing only the uv/ir blocking element (the one without the sensor cleaner) as this will allow the HA wavelength through (the one that we are interested in) without causing sensor errors by not having the cleaning element attached. Additionally by only removing a single piece of glass the effect on the focus is minimised. The other thing to be careful with this modification is to very carefully measure the sensor spacing as it is very easy to misalign the sensor so that it is not square causing focus issues from corner to corner. Please let me know if you need any clarification. *Regards Anders Hamilton*

Thanks Anders. The camera is only used with my scope, so no issue with the altered light path. *Cheers Chris Kostokanellis.*

<https://youtu.be/7huA4R9rXrQ> This is the video I'm using as a step by step manual. The guy seems to know what he's talking about. I mean, he's on You Tube! He also has a Web site with step by step documentation for the procedure. <http://dslrmodifications.com/rebelmod450d1.html> *Cheers Chris Kostokanellis.*

Looks good Chris, His advice to remove only the IR cut and leave the low pass filter is what I was referring to. You can do without replacing the glass if as you say it is dedicated to Astro use and this will retain the sensor cleaning function. This will also stop the sensor cleaning errors. *Regards Anders Hamilton*

Well, as they say in the classics, we have good news, and we have bad news. The dismantling of the camera had a few hic ups. a couple of seized screws gave me some trouble, and one of them is now not useable to put back on the camera. Most of the ribbon cables came off easily enough, with some additional persuasion required for 1 of them. Everything else went to plan. The sensor was removed, and the IR filter came out, even if it was in several pieces. Reassembly was easier than expected, with 1 hiccup. Here is the bad news. The connector for the ribbon cable connecting the rear case to the main board was damaged. The flap which presses and holds the ribbon in place came off, and I am unable to have the functionality of the LCD screen and the controls. However, the camera still shoots, and when I'm shooting, I control the camera settings from the laptop anyway. I'll see if this ends up being a problem. Now all I need is a clear night to test it out. *Cheers Chris Kostokanellis.*



Well done Chris, pity about the ribbon connector, you could always say you meant it to reduce any heat from the screen affecting the sensor. I look forward to seeing some results. *Anders Hamilton.*

You know Anders, doing modifications like this has another effect. It will now be overcast every night for the next 3 months, so I won't be able to test it out. But I did recently take a bunch of shots of a few different objects, so looking forward to comparing these with the modded camera. Will definitely post results.
Chris Kostokanellis.

Too late for you, but for anyone else following in your footsteps: The screws usually use something like lock-tight and are loosened by holding a hot soldering iron to the screw head. The ribbon cable connectors have ear legs at the side which slip over tags at the side of the connector. If you damaged the retainer, count the number of wires and take the damaged retainer to Dick Smiths or Jaycar and buy a replacement connector. Then remove and use the retainer. Nice going. *Regards Dennis Nolan.*

An update on the situation. I managed to restore full function to the display and controls. My solution involved using my phone camera as a magnifier, carefully grooming the connector pins into shape and sticking a couple of layers of sticky tape on the back of the ribbon cable to help it push up against the connector pins. Thanks Dennis Nolan and everybody else for the advice here. Now to get some photos! *Chris Kostokanellis.*



Just noticed this long list of messages relating to camera mod. One issue to consider is that with the filter IR/UV totally removed, you may have massive focus issues, even just using on the telescope. This is a result of the optics even on high grade triplet refractors is not going to be good common focus point over the entire spectrum. Especially beyond blue and IR ends. For UV, fortunately this is a low sensitivity range for silicon sensors anyway, but on long exposures still could have effects. The IR end however will have severe focal issues, a silicon sensor without any interposed filters has a strong sensitivity into IR band quite deep into the invisible IR spectrum. Thus the easy use as night camera with IR illumination, but visible light needs to be filtered out.

Yet while the telescope/eyepiece optics will be optimised to keep focus quite reasonably constant within visible spectral range, the IR focus point may deviate by several millimetres from the visible range, and thus IR may give mini fuzz ball images on stars, if the visible is in focus, but also if focused in IR the visible light will give likewise mini fuzz ball stars images. No single focus will do both spectral ranges. Also UV/deep purple/blue may fuzz or fringe the images too. Less of a problem on reflector telescopes, but not entirely so, especially with Schmitt correctors. Normally a substitute filter is needed that still gives extended spectral range but not unlimited range. A solution in that case is one of several CANON clip-in filters that can be inserted and exchanged inside the lens locking ring. So choosing something with a wider or specific spectral response for astronomy can assist massively. Such filters should be readily available at Bintel for instance, the Melbourne shop has these before it was closed so i assume they still have them. I bought several years ago H-alpha, O-III, and so on. *Regards Helmuth Schultes*

I managed to get some shots last night with the modded camera. The Target was NGC 2070 (Tarantula).
I took some shots of NGC2070 a couple of weeks ago, so this is pretty much a direct comparison of pre mod and post mod.
The stacked images are stacked in Sequator with identical settings.
Each stack is from 20x40sec exposures at ISO6400, with Dark Frames.
I've uploaded the stacked .TIF files (around 130MB each) and a sample single .CR2 raw file from each session.
My mount wasn't behaving particularly well last night so the Modded images are a more streaky than the previous session.

If anybody is interested, the images can be found here. I haven't processed them at all. Cheers *Chris Kostokanellis.*
<https://drive.google.com/drive/folders/1jeqR4OCYcxSxt1oHcKlxj5D-5nsBZBNc?usp=sharing>

Before IR filter was removed.



After IR filter was removed.



MEMBERS GALLERY



NGC2427 | Intermediate Spiral Galaxy |LRGB By Steve Mohr

Worked on this nice data set of a shady area not far from the Hand of God CG.

NGC 2427 is an intermediate magellanic-type spiral galaxy located in the constellation of Puppis, about 44 million light-years from the Milky Way. It was discovered by British astronomer John Herschel in 1835.

In this scene, NGC2427 is surrounded by massive areas of accumulated dust and dimly glowing gas, with some dense, dusty features being called “Cometary Globules”. A good example of a cometary globule can be seen in the top left of the image, with an orange star near centre of it. Cometary globules were first observed in 1976, and are described as interstellar clouds with comet-like morphology, consisting of compact, dusty, and opaque heads and long, faintly luminous tails.

A more famous cometary globule is commonly known as the Hand of God, who is a close neighbour to this scene. In 2017, I imaged the Hand of God and have made a plate solving of these two to provide you an idea of how far away these two are from each other in perspective [second image provided]. From the Wiki...

Thanks for looking, and have a nice evening.

Hi res link: https://live.staticflickr.com/65535/50818001803_8069ff8b85_o.jpg

Information about the image:

Center (RA, Dec): (114.340, -47.864) Center (RA, hms): 07h 37m 21.708s Center (Dec, dms): -47° 51' 51.185" Size: 48.9 x 32.6 arcmin
 Radius: 0.490 deg Pixel scale: 0.732 arcsec/pixel Orientation: Up is -134 degrees E of N
 Instrument: Planewave CDK 12.5 | Focal Ratio: F8 Camera: STXL-11000 + AOX | Mount: AP900GTO Camera Sensitivity: Lum: Bin 1x1,
 RGB: Bin 2x2 Exposure Details: Total: 4.25 hours | Lum: 8 x 900 sec [2.0hr], RGB 6 x 450sec each [2.25hrs] Viewing Location: Central
 Victoria, Australia. Observatory: ScopeDome 3m Date: March 2020 Software Enhancements: CCDStack2, CCDBand-Aid, PS, Pixinsight



NGC3532 | Wishing Well Cluster | LHaRGB *By Steve Mohr*

Anyone trying to process this object will quickly realise the field is overwhelmed by the brightness of the main star cluster, with the faint background nebulosity being a trick to bring out without destroying the stars. In the end, I have actually used the Ha stars for the main cluster [so I lost some of the very faintest stars], and created an artificial flat in the base colour of the star glow, selectively applied to where it was needed, and subtracted that out to remove the strong and massive halo from all the stars. I did apply a star mask to this artificial flat so not to change the colour of the stars whilst subtracting the selective flat. That seemed to work.

NGC 3532 (classified by Sir Patrick Moore as Caldwell 91), also commonly known as the Pincushion Cluster, the Football Cluster, the Black Arrow Cluster and the Wishing Well Cluster, is an open cluster some 405 parsecs from Earth in the constellation Carina. Its population of approximately 150 stars of 7th magnitude or fainter includes seven red giants and seven white dwarfs. On 20 May 1990 it became the first target ever observed by the Hubble Space Telescope. A line from Beta Crucis through Delta Crucis passes somewhat to the north of NGC 3532. The cluster lies between the constellation Crux and the larger but fainter "False Cross" asterism. The 4th-magnitude Cepheid variable star α Carinae (V382 Car) appears near the southeast fringes, but it lies between the Sun and the cluster and is not a member of the cluster. Wiki...

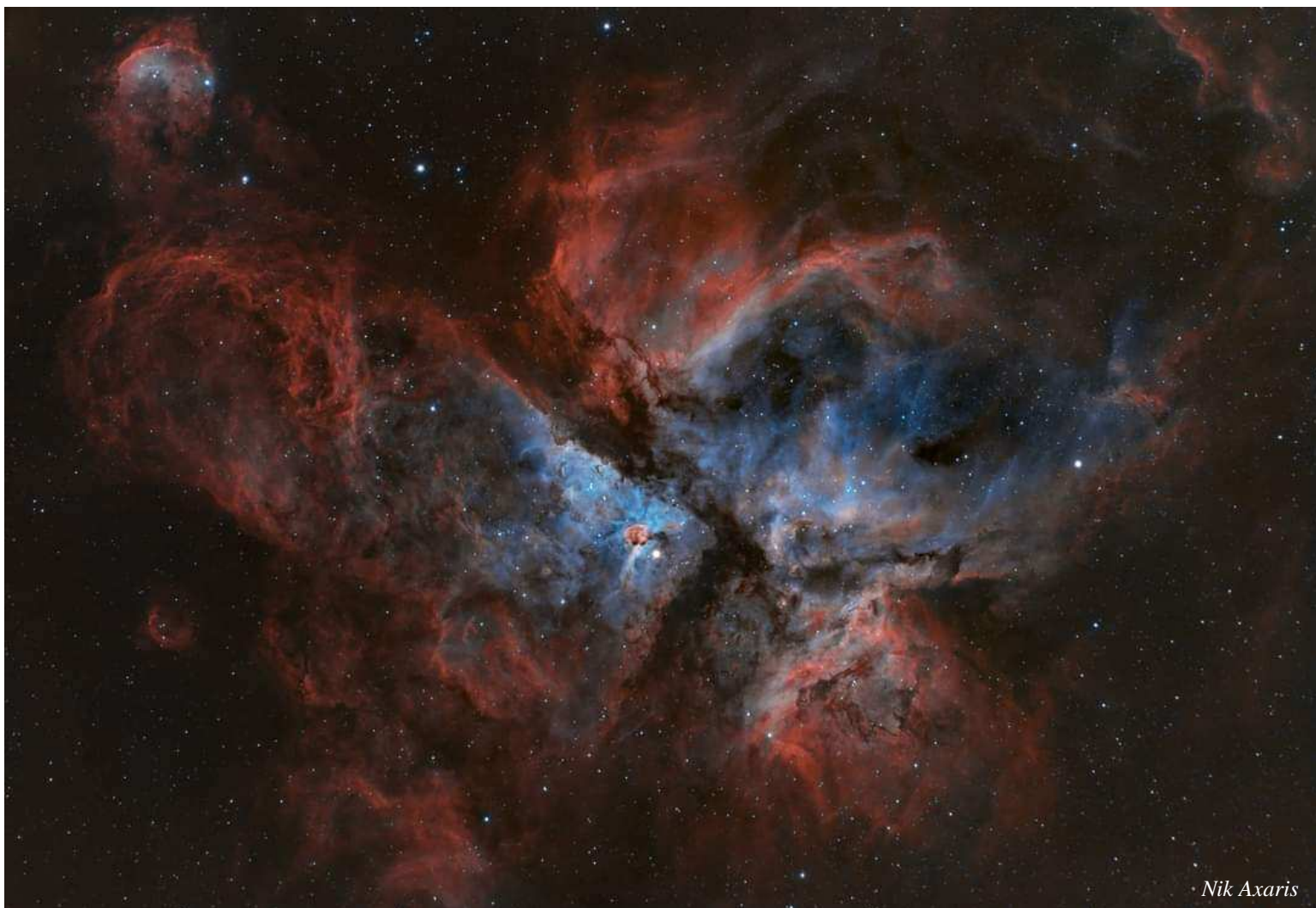
The cluster was first catalogued by Nicolas Louis de Lacaille in 1751. It was admired by John Herschel, who thought it one of the finest star clusters in the sky, with many double stars (binary stars).

Hi res link: https://live.staticflickr.com/65535/50939560953_722bc98976_o.jpg

Information about the image:

Center (RA, Dec): (166.252, -58.813)
 Center (RA, hms): 11h 05m 00.399s
 Center (Dec, dms): -58° 48' 48.318"
 Size: 48.9 x 32.6 arcmin
 Radius: 0.489 deg
 Pixel scale: 0.732 arcsec/pixel
 Orientation: Up is -68.6 degrees E of N

Instrument: Planewave CDK 12.5 | Focal Ratio: F8
 Camera: STXL-11000 + AOX | Mount: AP900GTO
 Camera Sensitivity: Lum + Ha: Bin 1x1, RGB: Bin 2x2
 Exposure Details: Total: 22.6 hours | Lum: 15 x 900 sec [3.75hr],
 Lum: 80 x 60 sec [1.33hr], Ha: 30 x 1200 sec [10.0hr], RGB 20 x
 450sec each [7.5hrs]
 Viewing Location: Central Victoria, Australia.
 Observatory: ScopeDome 3m
 Date: January 2021
 Software Enhancements: CCDStack2, CCDBand-Aid, PS, Pixinsight



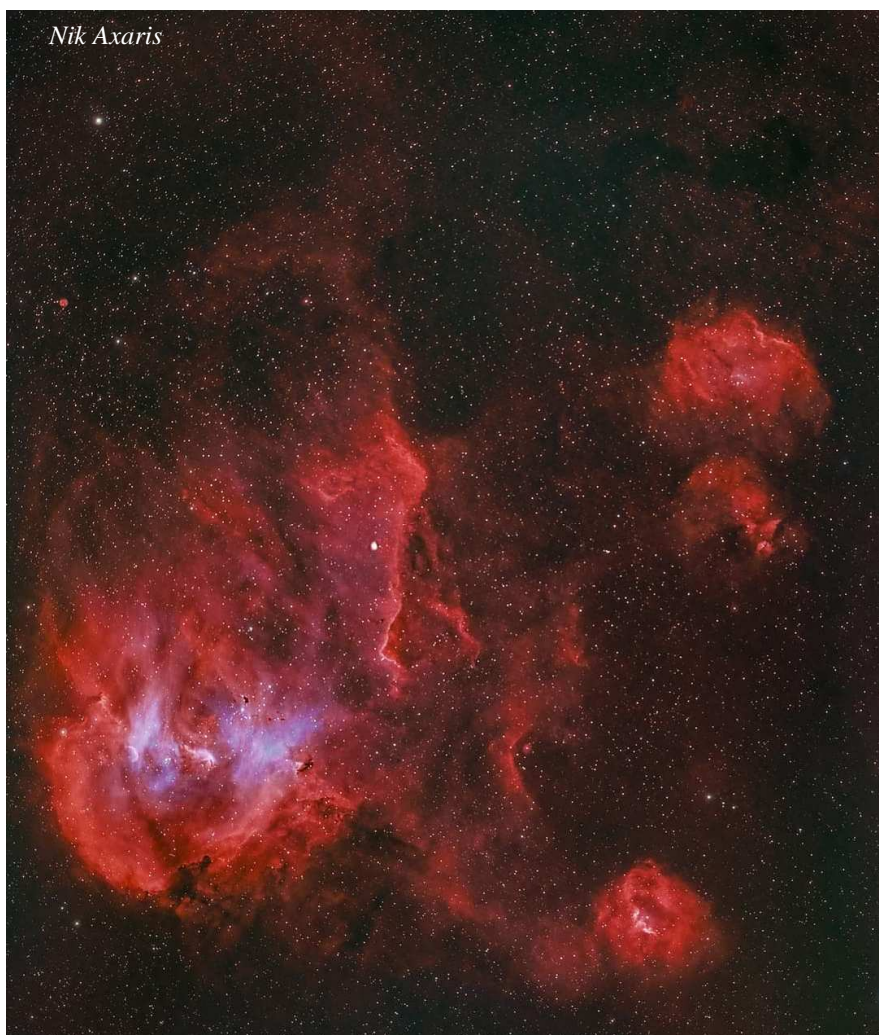
Nik Axaris

Above - Carina Nebula the great southern Nebula. Processed this in Astropixel Processor, separated the channels into HA and O3 and recombined them. In Photoshop I tweaked the image then pasted as a luminous mask the HA which did a great job of taking the stars and enhancing the nebulosity. Did a further starnett++ and created a star mask, worked on the nebulosity of the starless image then recombined the stars in linear dodge mode. 26 x 300 secs asi zwo 294mc with the Optolong L-Extreme. Skywatcher ED72 with the 0.85 reducer. Guided with the asi 120mm controlled with the ASIAIR Pro eq mode on the Skywatcher NEQ6.

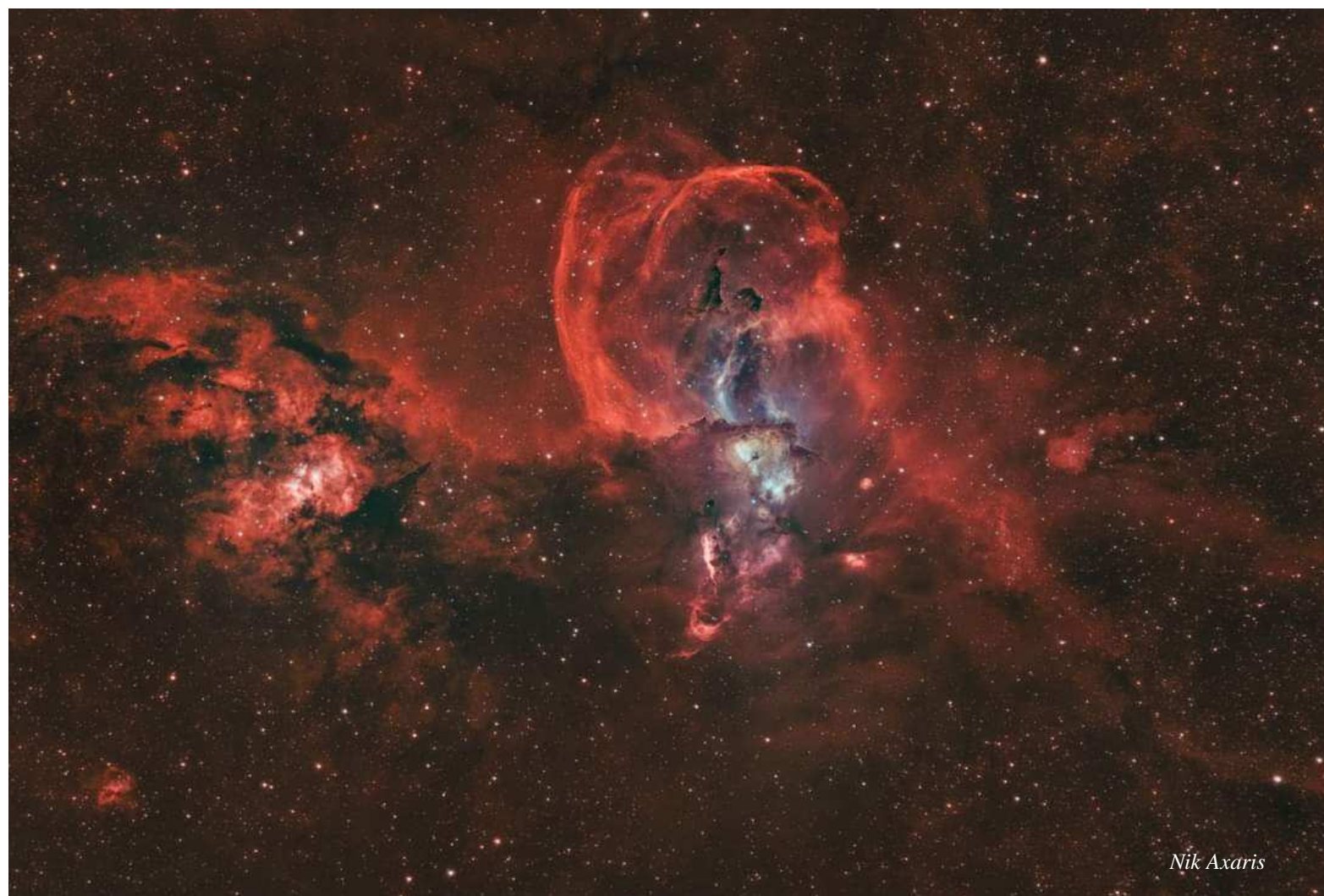
By Nik Axaris

Right - It's been a while due to work and weather Running chicken nebula IC 2944 lots of issues acquiring and making this image but I managed to get something 2.5 hours at 10 minute subs 294mc pro asi air pro neq6 optolong l-extreme Skywatcher ed72 Telescope with 0.85 reducer. Astropixel Processor and Photoshop (HOO process) Guided and acquired with ASIAIR Pro 120mm guide camera.

By Nik Axaris



Nik Axaris



Nik Axaris

The Statue of Liberty Nebula aka NGC 3576 found in the southern sky close to Carina and The Running Chicken Nebulas. We are truly blessed with some amazing objects down south. acquired in Melbourne bortle 6-7 TS-Optics 130mm refractor I used Astropixel processor to extract Ha O3 and also created a mono Ha03 image then used the three as an HSO recombination using the Mono as the sulphur channel. The rest was processed in photoshop. Took forever to do and still a long way to go.

26 300 second subs and 13 600 second subs so a total of nearly 5 hours Astropixel Processor and Photoshop (HSO process) Guided with ASIAIR Pro, Acquired with zwo 294mc Pro, Zwo 120mm guide camera, Optolong L-Extreme filter.

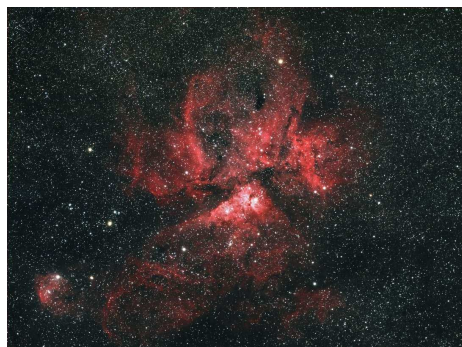
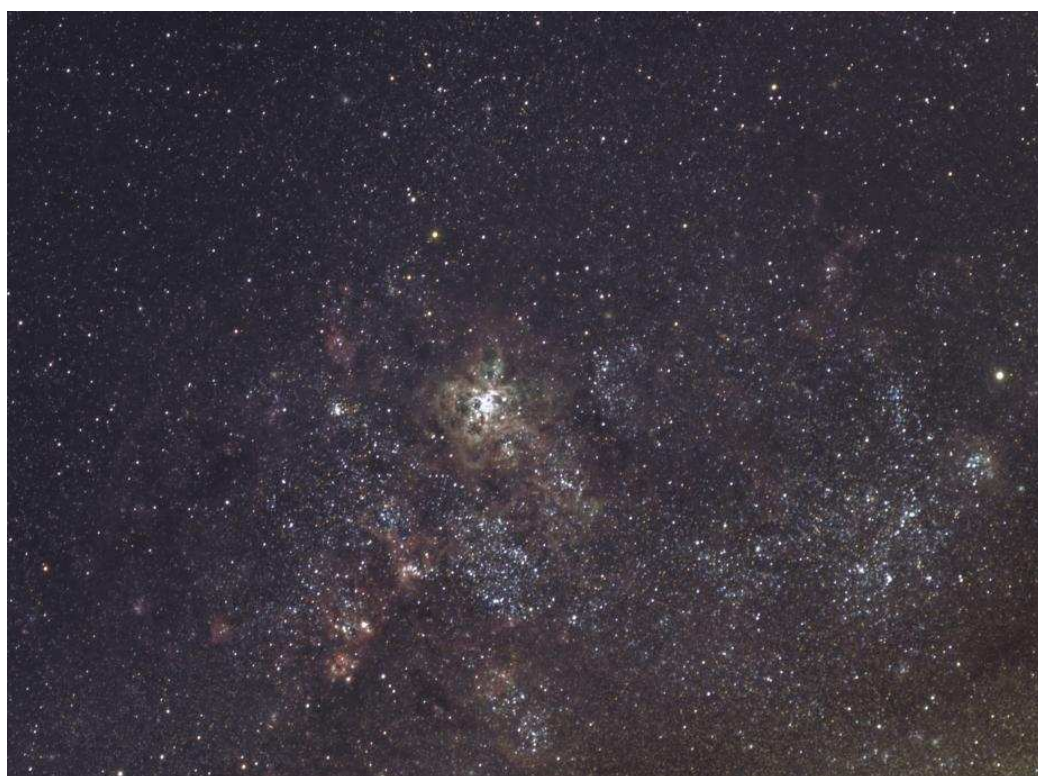
By Nik Axaris

Right - NGC2070, Tarantula taken with a ZWO1600M Camera and a William Optics Star 71 telescope. April 4th 2021 from Cranbourne, 2 Minute Exposures stacked of Red, Blue, Green, Luminance and Ha. Total Image time was about a hour.

By Dave Rolfe

Below - Eta Carina.

By Dave Rolfe

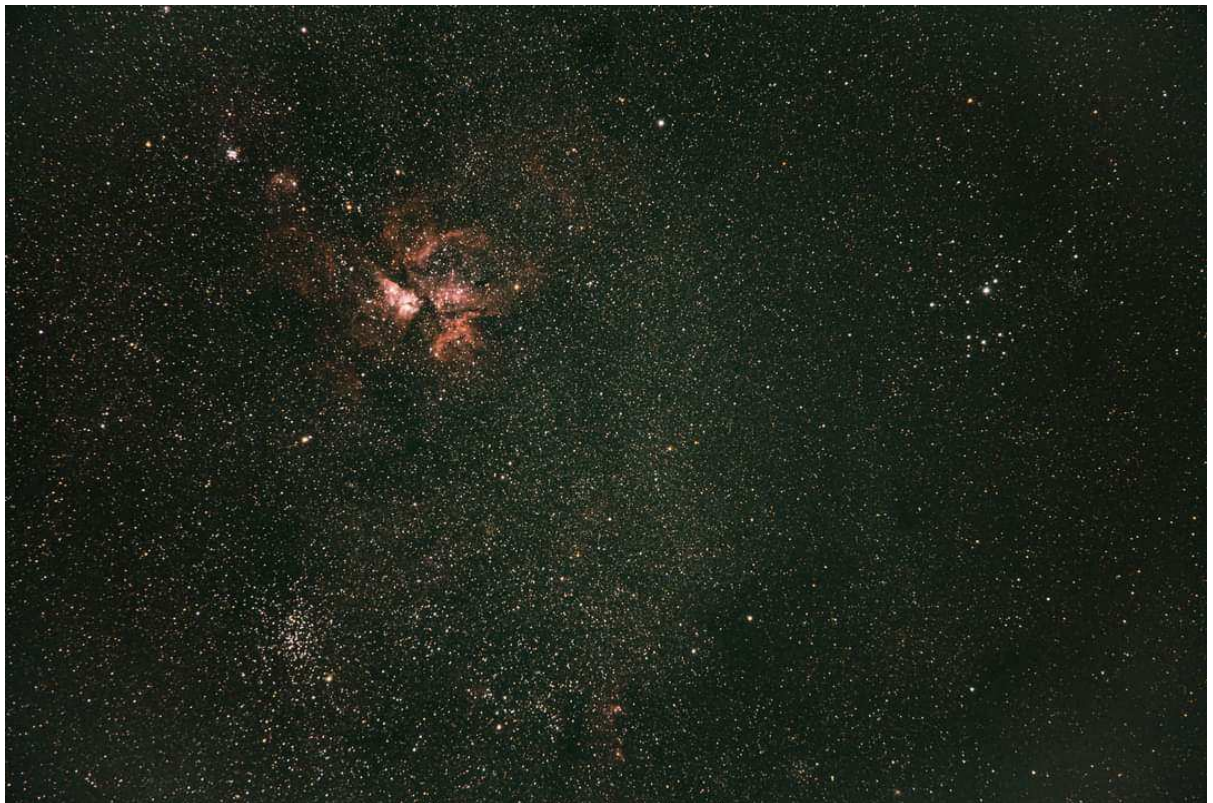




Above - Southern cross, LMC and SMC. *By Alex Cherney*

Right - I recently took a few images of the Eta Carina nebula and surrounding area. This is just with the camera lens, and not very zoomed in (only 135mm focal length). The Nebula itself would fit snugly inside the Southern Cross. I like this composition because it shows some of the star clusters in the area, and how rich with different coloured stars this part of the sky is. Geek Out!
Chris Kostokanellis

Star cluster below eta Carina is NGC3532 Pincushion, the first object imaged by the Hubble telescope.
Greg Walton



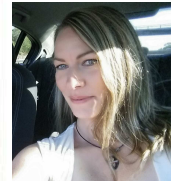
SOCIETY INFORMATION



Peter Skilton



Mark Stephens



Nerida Langcake



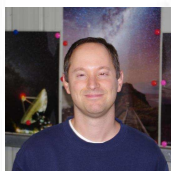
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Anders Hamilton



Trevor Hand



Simon Hamm



Peter Lowe



Dave Rolfe



Greg Walton

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SOCIETY MEETINGS

Meeting Venue: MPAS Astronomy Centre
 The Briars, Nepean Hwy, Mt Martha
 (Melways ref. 151/E1)

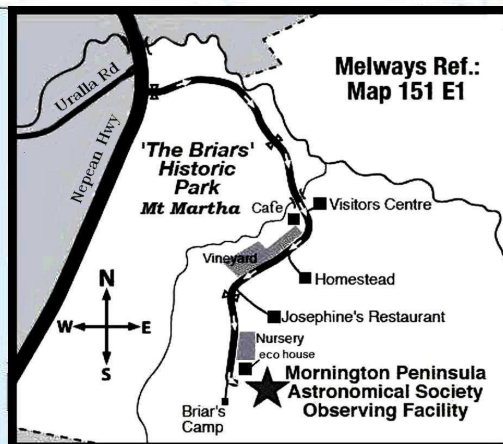
Society meetings: Don Leggett Astronomy Centre
 8pm on the third Wednesday of the month
 (except December)
 (See map at right & Below)



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

Phone: 0419 253 252

Mail: PO Box 596, Frankston 3199, Victoria, Australia



Melways Ref.: Map 151 E1

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



Guido Tack

Fred Crump

E-SCORPIUS NEWSGROUP

M.P.A.S. main line of communication is the online newsgroup called E-Scorpius. Here you will be kept up to date with the latest M.P.A.S. news & events information as well as being able to join in discussions & ask questions with other members. To join, email welcome@mpas.asn.au say that you want to join E-Scorpius & you will be added to the E-Scorpius list.

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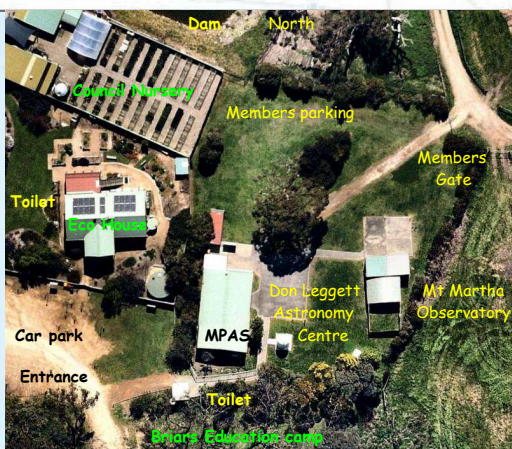
VIEWING NIGHTS - MEMBERS ONLY

Viewing Night - Members only any night, at The Briars, Nepean Hwy, Mt Martha, starting at dusk. Members visiting The Briars for the first time must contact Greg Walton on 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 gwpas@gmail.com

MPAS newsletters online - https://drive.google.com/folderview?id=0ByvxkzZGI9g_SUNmZVhkZTFGWTA

SCORPIUS The journal of the Mornington Peninsula Astronomical Society

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