Cover image - Comet K2 2017 taken from the Briars with the 350mm Meade telescope in the observatory. See where the comet will be in September on page 8. *By Greg Walton*

SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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

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

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

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

Scorpius MPAS - https://www.facebook.com/Scorpius-MPAS-1694951307446763/

Mornington Peninsula Astronomical Society

PUBLIC STARGAZING

Hi Everyone, We are re-introducing the wearing of face masks indoors at the Briars site, effective immediately. (19-Jul-2022)
The only exception will be the speaker on a talk night, or if you show a current medical exemption certificate from your doctor. While outdoors, you may remove the mask if you wish. This precautionary measure is aimed at mitigating the spread of respiratory viruses, most notably COVID-19, and aligns with the current strong recommendation from the Victorian Department of Health. If you were not aware already, across Australia there have been 300+ COVID-19 deaths per week for months now, spread across age groups, and flu strains have added 150 deaths for all of 2022 so far, mainly in the elderly. Both are expected to increase in the next 2 months. At this stage it is intended to keep this measure in place for winter, and will be reviewed by Committee in September. Should you forget your mask, there should be spares available in the reception area, near the hand sanitiser and tissues. Thank you for your help with this collective effort to keep our community safe and healthy. Regards, *Peter Skilton, MPAS President*

In line with the recent government relaxation of the pandemic rules for community groups such as ours, the COVIDSafe Plan for the Briars site has been similarly adjusted: www.mpas.asn.au/covidsafe-plan/

Public Stargazing Nights
Stay home if you have any suspected COVID-19 symptom.
Pre-booking remains required for the public. Members need not book. Public nights capped at 70 visitors, plus any members there.
QR code check-in and Proof of Vax status are no longer required. Anyone may attend.
Face masks are required inddors, optional outdoors, and social distancing is advised.
Events will be outdoors as much as possible.
Surfaces and equipment are still cleaned.

Member gatherings
Stay home if you have any suspected COVID-19 symptom.
If you've been at the Briars for any length of time, and in the following week test positive, please let us know by email to welcome@mpas.asn.au, or telephone one of the committee members, and we will inform any potential close contacts.
QR code check-in and Proof of Vax status are no longer required. Any member may attend.
Face masks are required indoors, optional outdoors, and social distancing is advised.
Members are encouraged to bring their own telescopes, eyepieces etc.
Any shared equipment (eyepieces, focuser knobs, hand controllers) needs to be cleaned regularly.
Members are now able to use the site fully. This means that if you have completed the observatory training and have received a key and/or fob, you are welcome to use the observatory at any time.
Continue to sanitise your hands regularly.
Surfaces, such as handles, knobs, locks, taps, tables and chairs, hand rails etc. need to be cleaned before leaving the site.

The 2022 timetable of public events.

SEPTEMBER
Friday 2nd, 8pm Briars. Public stargazing night. Speaker Trevor Hand. 70 anticipated.
Monday 5th, 7pm Briars, Mornington Park Primary. Speaker Peter Skilton. 25 Year 6 pupils.
Wednesday 7th, 6:30pm, Baden Powell Joey/Cubs at Frankston South hall. Speaker TBD. 45 cubs anticipated.
Thursday 8th, 6:30pm, Parkdale Secondary College, Warren Rd, Mordialloc East at the school. Speaker Peter Skilton. 219 Year 7
Friday 9th, 7pm Briars, 3rd Ringwood East Scouts. Speaker TBD. 50 cubs anticipated.
Monday 12th, 7pm Briars, Toorak College. Speaker TBD. 40 girls anticipated (class 1 of 2).
Tuesday 13th, 7pm Briars, Toorak College. Speaker TBD. 40 girls anticipated (class 2 of 2).
Saturday 17th, Astrophotography Workshop, Briars. Speaker various. 70 public & members anticipated.

OCTOBER
Saturday 1st, 6pm-9pm, NASA Observe the Moon night, Frankston foreshore. No speaker. 200 public anticipated.
Monday 3rd, 7pm, Stella Maris Primary, 113 Oak St, Beaumaris at the school. Speaker Peter Skilton. Year level & number
Friday 7th, 8pm Briars. Public stargazing night. Speaker Manfred Berger. 70 anticipated.
Monday 10th, 7:30pm, Bayside Christian College, 120 Robinsons Rd, Langwarrin at the school. Speaker Peter Skilton. 50 Year 10
Saturday 22nd, Briars. Telescope Learning Day. Speaker various. 70 public & members anticipated.
Friday 28th, 8pm Briars. Scout/Guides/Cubs night. Speaker Peter Skilton. No bookings yet.
Saturday 29th, 6pm Briars. Frankston Hospital ICU night. Speaker Peter Skilton. 25 anticipated.

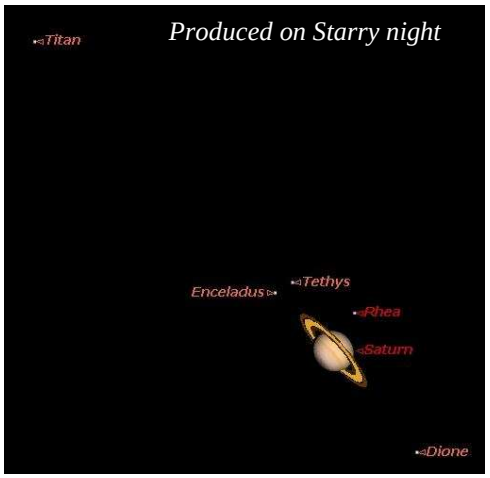
NOVEMBER
Friday 4th, 8pm Briars. Public stargazing night. Speaker Trevor Hand. 70 anticipated.
Tuesday 8th, 6pm, Lunar Eclipse, Briars. Speaker Trevor Hand. 70 public & members anticipated.
Thursday 17th, 8pm, Good Samaritan Primary, at Camp Manyung, 35 Sunnyside Rd, Mt.Eliza. Speaker Peter Skilton. 50 Year 6
Sunday 20th, 11am-5pm, Bentleigh Street Festival, main street of Bentleigh. No speaker. 2000 public anticipated.

DECEMBER
Friday 2nd, 8pm Briars. Public stargazing night. Speaker Katherine McCoy. 70 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.

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

SOCIETY NEWS



Public viewing Night July 1st - The July public stargazing night went ahead with 60 visitors. Telescope observing was the first order of events, ahead of probable encroaching cloud. Although it was clear over the Briars, as often happens due to the elevation, there was encircling thick cloud around the horizon. This enabled everyone to see some objects through the observatory and outdoors assembled instruments. Guido Tack, who arrived back from the other side of the planet a few days beforehand, then talked to the audience indoors in the warm, while the clouds thickened outside. Members helping and attending were Simon Hamm, Jamie Pole, Nerida Langcake, Anders Hamilton, Ben Claringbold, Peter Skilton, Fred Crump and Bonnie Cass, Greg Walton and new member, Phil Peters. Saturn was visible for those who chose to see some of the heavens after the end of the talk, as the clouds did not totally obscure the sky. *Regards, Peter Skilton*

Many arrived early to look through the telescopes before the talk started. Guido Tack gave an informative talk on the planets, while members manned the telescopes. The clouds came and went throughout the night making it a bit more challenging. With no Moon in the sky the deep sky object looked glorious, including The Jewel Box NGC4755, Eta Carinae NGC3372, Omega Centauri NGC5139, the Pin Cushion NGC3532 and the Butterfly cluster M6. As the night drew to a close, Saturn had risen high enough to be seen through the 14 inch Meade in the observatory. Saturn didn't disappoint, as the words of “is that Saturn's rings” were heard. Saturn's rings now cross the face of Saturn. Saturn's brightest moon Titan was easily spotted far from Saturn along with a sprinkling of tiny moons around the planet. *See right. Greg Walton.*

Society meeting AGM July 20th - Saw 22 members in attendance.
First Peter Skilton (President) gave a report on recent and upcoming events. Then we watched a recorded video, see details below, then Mark Stephens did Sky for the Month. After a break for coffee we watched 3 short YouTube videos.

The meeting features Prof. Chris Bishop, Laboratory Director, Microsoft Research Cambridge University, Prof. of Computer Science, Edinburgh University and Fellow of the Royal Society, giving a public lecture at the Cambridge Science Festival about "Rocket Science". This talk is courtesy of the Royal Institute in London. The rocket launches from Arnhem Land (NT) in the last month are also covered, as are the first high resolution images released from the James Webb Space Telescope.

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*

Photo at right - First to arrive for the AGM tonight, so playing with my phone while waiting for other members on this beautiful, clear, freezing evening at MPAS. *Nerida Langcake*

Members BBQ & Working Bee July 23rd - Was very successful even though the weather was wet and cold. We were able to concentrate on indoor jobs. Levelled the stove in the kitchen, removed cobwebs in the observatory and clubrooms. Cleaned the 12 inch Dobsonian which had not been used for the past 3 years due to COVID. We also found out why the heater was not working on the 127 refractor telescope, it was just a loose connection, but took some time to find the fault. Then we checked out the EQ8 mount on the 350mm Meade which had developed a fault in one of the encoders, over time the pointing accuracy on the Dec axis drifted which was a bit annoying. We found the engraved plate which the encoder reads was very corroded, looking like the chrome plating was falling off, a bit disappointing because the mount is not that old. After reading the instruction manual we found we could turn off the auxiliary encoder, meaning the mount used the encoder in the stepper motors instead. As the sky was cloudy we couldn’t test the pointing accuracy. By then the sausages were cooked and we watched a Brian Cox DVD on the big screen during dinner. All up there were about 20 members in attendance. Good to see we had 4 new members. A big thanks to all those members who helped out on the day. *Greg Walton.*

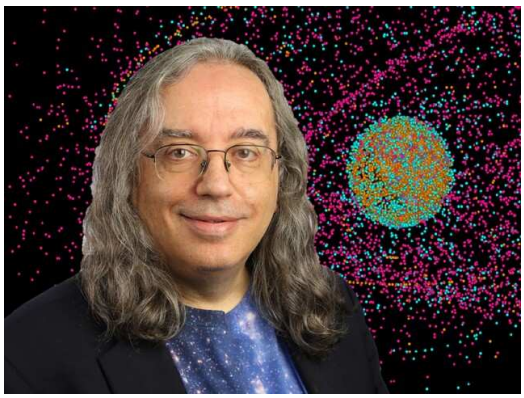
Public viewing Night August 5th - The August 5th public night at the Briars had 62 in attendance, with some who pulled out due to the weather where they were living. While much of metropolitan Melbourne was indeed under cloud and rain, the Briars had its familiar remarkably clear skies nearly all evening, with barely 5% cloud cover until much later that night. The public started the evening outdoors on the telescopes, just in case the weather closed in quickly, but it didn't. Great views were had of the Moon and Saturn, to name but two targets. Then the talk followed indoors. We warmly welcomed Katherine McCoy back from her adventures, as she gave the recently updated solar system talk to the audience. Other members participating on the night were Nerida Langcake, Simon Hamm and his coloured Moon globes, Mark Stephens, Peter Skilton, Ben Claringbold, Alan Predjak, Jason Heath, Fred Crump, Phil Peter, Greg Walton, Jamie Pole, David Connet, Chris Kostokanellis, Simon Meyer and Maria Remova and her sons. *Regards, Peter Skilton*

The evening started with an almost 100 percent cloud cover. Just before 8pm the sky cleared and we quickly opened the observatory and aligned the telescopes, then we dragged Big Blue 8 inch refractor out and pointed it towards the Moon. Katherine McCoy gave the talk on the planets till 9pm. By then Saturn was high enough to be seen through the telescopes which wowed the visitors. Moon being at first quarter made it more difficult to see the fainter deep sky objects. Omega Centauri, Jewel Box, 47 Tuc still looked ok. A very successful night. *Greg Walton*

Scout viewing Night August 8th - Forty-five 1st South Frankston Joeys, Cubs and parents attended the Briars that night for some stargazing. The talk indoors was given by Peter Skilton, then everyone moved outside to the telescopes on the slabs and in the main observatory, under a wonderfully cloudless sky all evening. Although cool conditions, the windlessness made for quite comfortable viewing conditions if you were wearing a jacket. Great views were had of the gibbous Moon, Saturn, the Jewel Box and several other objects. The evening started with a little drama, when the site's main switch was tripped after plugging in the red LED path guide strip lights, which looked like having developed an electrical fault. The auditorium emergency lights kicked in as designed to do. Fortunately the power was restored within 5 minutes, sans strip lights, before the audience descended from the car park to listen to the talk upfront. Helping run the telescopes outside afterwards, and in the observatory, were Phil Peters, Katherine McCoy, Connor Mathieson, Fred Crump, Jamie Pole, Robyn Broberg, Anders Hamilton, Ben Claringbold and Greg Walton. Two or three of the cubs appeared particularly knowledgeable in space. Questions about the SGR A* black hole could only be contained until slide 2, while the Kuiper Belt and Pluto classification controversy surfaced at slide 3, and with one eager cub really wanting to see Jupiter and its Great Red Spot. However, he had to wait until later in the year when it rises at a more sociable hour. So we might see his family at a future public night. This is the first time this particular group have visited us, and by all accounts they highly enjoyed the experience. *Regards, Peter Skilton*

School viewing Night August 10th - Last night, on quite a cool and totally overcast night, saw 30 year 9, 11 &12 astronomy students from Mount Erin Secondary College in Frankston South present to welcome us to the school for the first time. For many, the weather and clouds dissuaded them from attending, as it wasn't a compulsory requirement by the school. One Year 12 girl attending said to me after the talk that she remembered us very fondly from a family visit to the observatory at the Briars over 4 years ago. The school had a magnificent auditorium, considerably better and larger than the quality one we used to hold meetings in at the Peninsula School, with a large main screen and two large TVs on either wing, raised high. A quick count showed it seated 212, so there was a lot of social distancing going on and, indeed, they had a HEPA air filtering unit operating at the entrance as well. Peter Skilton talked to the group, answering lots of questions for nearly 90 minutes. Then telescopes of different types were brought indoors into the foyer, and their usage was explained to the students by Katherine McCoy, Phil Peters and Chris Kostokanellis, drawing a lot of interest from students and teachers. Also standing by ready to help outdoors earlier in the evening, should the clouds clear, were Greg Walton, Fred Crump and Ben Claringbold. The evening wrapped up at 10pm, showing the enthusiasm level for our visit that ordinarily would have only gone until 9pm. And the teachers, of course, had to get up early the next day for school as well. *Regards, Peter Skilton*

Scout viewing Night August 12th - The quarterly Scout, Cubs and Guides night at the Briars was a hive of activity on August-12 with 70 visitors, drawn from the 1st Ballam Park Cubs, 2nd Mornington Sea Scouts and 2nd Rosebud Scouts. Katherine McCoy and Peter Skilton gave a duet talk, batting some curly questions along the way and listening to statements from the kids. There already was a lot of knowledge about the sky in some of them. One young girl at the back, dressed in pink, enthusiastically jumped up and down at her seat until she was picked to ask her latest question. It proved to be a most effective strategy. Alas, it was total cloud cover all evening. Nevertheless, following the talk, the visitors moved outside for an observatory tour and explanation of the telescopes, before being collected by their parents. Helping outside with the evening were Ben Claringbold, Mark Stephens, Nerida Langcake, Phil Peters, Jamie Pole and Anders Hamilton. It was wonderful to see such an enthusiastic group at the Briars again, and that was even without stars to look at. *Regards, Peter Skilton*



Society meeting August 17th - Peter Skilton (President) reported on recent and future events then Mark Stephens did Sky for the Month. The meeting features Dr. Jonathan McDowell, Astrophysicist, Harvard-Smithsonian Centre for Astrophysics, Cambridge, Massachusetts, and Science Data Software Lead for the Chandra X-Ray Space Telescope, on the topic of "Space Junk: A Traffic Crisis in Outer Space". The background behind the definition of the edge of space, and advanced cake cutting, are also covered. 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*

Public viewing Night National Science August 19th - The Science Week public night at the Briars had 36 visitors under light rain conditions. Trevor Hand gave the talk indoors about meteors and meteorites, showing real samples as part of it. Members who were present and helping were Chris Kostokanellis, Ben Claringbold, Nerida Langcake, Phil Peters, Mark Stephens, Peter Skilton, Greg Walton, Simon Hamm, Fred Crump and Wayne Carton. Though the telescopes could not be used under inclement conditions, the visitors were nevertheless given a tour of the facilities, and members answered a lot of questions. *Regards, Peter Skilton*

Members BBQ & Working Bee August 20th - Saturday's working Bee and BBQ was held under variable conditions but mostly sunny and clear which I think fooled many into thinking it wouldn't be. It saw the lawns get a much needed mow, the observatory door fixed (we hope), and Chris pressure washed the dome and the place given a general spruce up. This was followed by a BBQ with plenty of food and Ann Dann's superb Vanilla slice. Unfortunately, due to the small turn out, I had to eat three of them. After dinner, the observatory was opened and a reasonable view was had of Saturn, 47 Tuc and some of the myriad objects in the Antares area. Thank you to all who helped on the day. *Regards, Mark Stephens VP*

Mornington Peninsula Astronomical Society

ASTROPHOTOGRAPHY WORKSHOP

SYMPOSIUM

The Mornington Peninsula Astronomical Society is proud to announce an Astrophotography Workshop.

We will be canvassing and introducing concepts which will assist both the amateur and the professional photographer.

The day will have an array of lectures given by experienced and acknowledged astrophotographers.

A practical hands-on session will also be held during the evening at our observatory.

We will be providing tea, coffee and biscuits during the day.

A BBQ and refreshments will be supplied to gear you up for the night ahead.

TOPICS

Introduction to Astrophotography.

Imaging the Southern Lights (Aurora).

Wide-field Astrophotography with a DSLR.

Deep sky Astrophotography.

Photoshop for astrophotography
(If weather is overcast)

Practical application and consolidation of concepts acquired.

When: The 17th of September 2022
Where: The Briars MPAS society rooms Mt Martha
Time: 1:00 pm till late

Places are limited to 70 people so bookings are essential.

$75 non members & $50 entry for MPAS members.

Bring your Tripod, Camera, warm clothes and an enquiring mind.

Further information can be found at **www.mpas.asn.au**

Book online at **https://www.trybooking.com/RKCQ**

More information on next page.

The Astrophotography Workshop continues this year with new and updated content, on camera and smartphone astrophotography, aurora and nightscape imaging. Are you a photographer looking to capture nightscape images, aurora, or even create a time-lapse? This event could be for you! Entry includes pizza, drinks, practical assistance with your equipment at our registered observatory in Mt Martha as well as a Q&A with the presenters and astronomers.

- Bring your camera and tripod to the event.
- Vegetarian pizza available however those with special dietary needs are welcome to self-cater in our kitchen (hot water, microwave).
- Tea / coffee and biscuits will be available.
- Under 16's must have a guardian attending.

Program (Subject to change)

1PM	**Registration**
1.20	**Event Welcome**
1.30	**Introduction to Astrophotography**
2.20	**Auroras**
3.20	**Time-lapse & Solar**
4.00	**Break**
4:30	**Nightscape Photography**
5.30	**Smartphone Photography**
6.00	**Astronomy Apps**
6.30	**Pizza Party!**
7PM	**Twilight**
[Practical Imaging Session]	
8PM	**In the event of clouds a Q&A session with the guest speakers**
11PM	**Event concludes**

Bookings can be made here, at a discounted price for members of $50 (regular price $75). https://www.trybooking.com/RKCQ

Good news for MPAS members. After many years of waiting the work on the 3 new toilets is now complete and open 24 hours a day. They're located in the grounds behind the Eco Living Display Centre, open to the public, nursery volunteers and MPAS members. They look great but have no hot water. Best part is the council cleaning contractors will clean them. *Greg Walton*

New Members Welcome

Phil Peters
Stav Mihelakos & Vili Waqakalou
Susan Knowles
Luke Kelly & family
Sabby & Shal

Wayne Carton
Naomi Cooper
Fred, Charlotte, Alexa & Imogen Drew
Karl O'Neill
Nerissa McDonald

MPAS SUBSCRIPTIONS 2022

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 2022 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 2022 fees is:

SOCIETY FEES

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

Subscriptions can be paid in a number of ways:

- **On-line (preferred, see at right)**
- **Cash payments to a committee member**
- **Send a cheque, made out to "Mornington Peninsula Astronomical Society", to MPAS. 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.

JOIN NOW

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

CALENDAR — September / 2022

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			Morning - 28th Io transit 12:52am S Io shadow 12:53am S Io transit 3:03am F Io shadow 3:05am F	1	2 **Public night 8pm**	3 Eu shadow 10:30pm S Eu transit 11:42pm S
4 Fathers Day **First Quarter** Eu shadow 1:03am F Eu transit 2:08am F	5 Mornington Park Primary Io shadow 12:39am S Io transit 1:13am S Io shadow 2:53am F Io transit 3:25am F	6 **Mars near Aldebaran** Io shadow 9:21pm F Io transit 9:51pm F	7 Baden Powell Joey / Cubs South Frankston Ga shadow 2:06am S Ga shadow 5:00am F	8 Moon at 364,492km Saturn below Moon	9 3rd Ringwood East Scouts at Briars	10 **Full Moon** Comet K2 2017 near star Pi Scorpii
11 Jupiter below Moon Eu shadow 1:05am S Eu transit 1:57am S Eu shadow 3:38am F	12 Toorak College Io shadow 2:33am S Io transit 2:58am S Io shadow 4:47am F Io transit 5:09am F	13 Toorak College Io shadow 9:02pm S Io transit 9:23pm S Io shadow 11:16pm F Io transit 11:35pm F	14	15	16	17 Mars right of Moon Neptune opposition APW
18 **Last Quarter** Eu shadow 3:40am S Eu transit 4:11am S Eu shadow 6:12am F	19 Io shadow 4:28am S Io transit 4:42am S Io shadow 6:41am F	20 Moon at 404,556km Io shadow 10:57pm F Io transit 11:07pm F	21 **AGM - Society Meeting 8pm** Io shadow 1:11am F	22 Io shadow 7:38pm F Io transit 7:45pm F	23 **Equinox**	24 **Working bee 4pm BBQ 6pm**
25	26 **New Moon**	27 Jupiter opposition	28 Eu transit 7:30pm S Eu shadow 7:31pm S Eu transit 9:56am F Eu shadow 10:02pm F	29 Io transit 7:17pm S Io shadow 7:20pm S Io transit 9:29pm F Io shadow 9:33pm F	30	

Monthly Events

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

Public night - 8pm to 10pm on the 2nd @ the Briars
Society Meeting - 8pm to 10pm on the 21st @ the Briars
APW - Astrophotography Workshop - 1pm to 11pm on the 17th @ the Briars
Working Bee - 4pm - **Members night & BBQ** - 6pm on the 24th @ the Briars

CALENDAR — October / 2022

Red Days indicate School Holidays

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 Moon at 368,291km Io shadow 12:43am F	31 Halloween... Eu shadow 8:11pm S Eu transit 9:05pm F Eu shadow 10:40pm F	**Morning - 5th** Io transit 3:35am S Io shadow 3:47am S Io transit 5:47am F Io shadow 6:00am F	**Evening - 5th** Eu transit 10:42pm S Eu shadow 11:07pm S	**Morning - 13th** Eu transit 3:23am F Eu shadow 4:13am F	**Morning - 20th** Eu transit 3:12am S Eu shadow 4:19am S Eu transit 5:39am F Eu shadow 6:47am F	1 Grand Final NASA Moon night Frankston foreshore
2 Day Light Savings Starts	3 Stella Maris Primary **First Quarter** Moon at 369,325km	4	5 Saturn below Moon Ga shadow 7:11pm S Ga transit 9:00am F Ga shadow 10:01pm F	6 Eu transit 1:08am F Eu shadow 1:38am F Io transit 10:00pm S Io shadow 10:15pm S	7 **Public night 8pm** Io transit 12:13am F Io shadow 12:28am F	8
9 Jupiter above Moon	10 Bayside Christian College **Full Moon**	11	12 Ga transit 9:41pm S Ga shadow 11:12pm S	13 Ga transit 12:18am F Eu transit 12:57am S Eu shadow 1:43am S Ga shadow 2:00am F	14 Mars right of Moon Io shadow 12:10am S Io transit 1:57am F Io shadow 2:24am F	15 Io shadow 8:53pm F
16	17 Moon at 404,328km	18 **Last Quarter**	19 **Society Meeting 8pm**	20 Ga transit 1:01am S Ga shadow 3:17am S Ga transit 3:38am F Ga shadow 6:04am F	21 Io transit 1:31am S Io shadow 2:06am S Io transit 3:43am F Io shadow 4:19am F	22 **TLD 4pm** Io shadow 8:35pm S Io transit 10:09pm F Io shadow 10:47pm F
23	24	25 **New Moon**	26 Comet K2 2017 near NGC6124	27 Scorpius Deadline	28 **Scout & Guides viewing night** Io shadow 4:03am S	29 Frankston Hospital ICU night Io transit 9:43pm S Io shadow 10:32pm S Io transit 11:55pm F

Monthly Events

Jupiter shadow transits can now start to be seen. Times in brown

Public night - 8pm to 10pm on the 7th @ The Briars
Society Meeting - 8pm to 10pm on the 19th @ The Briars
Telescope Learning Day - 4pm - **Members Night BBQ** - 6pm on the 22nd @ The Briars
Scout & Guides viewing night - 8pm to 10pm on the 28th @ The Briars
Frankston Hospital ICU night - 6pm on the 29th @ The Briars

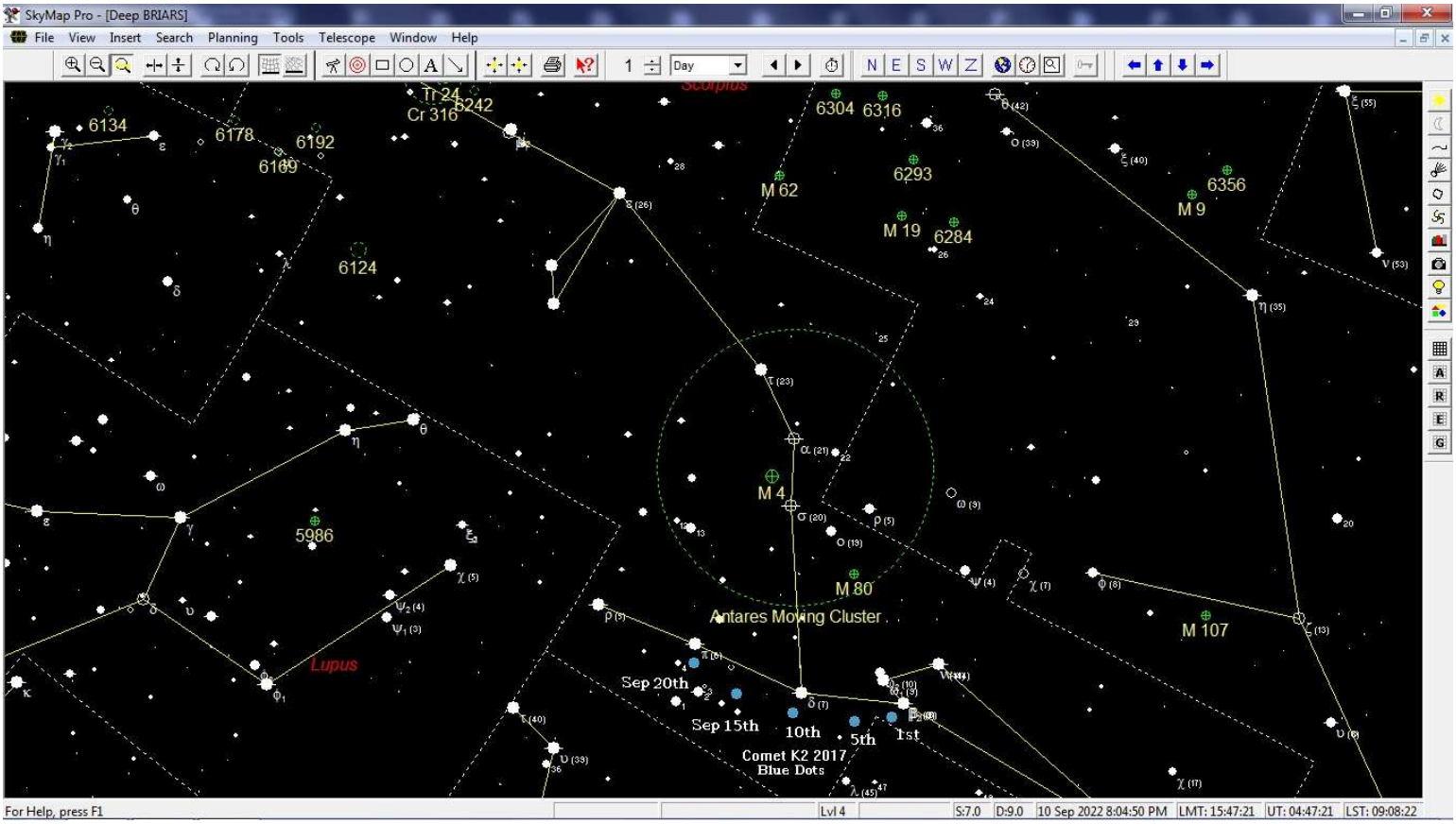
Jupiter Moon code
Io = Io
Eu = Europa
Ga = Ganymede
Ca = Callisto
S = start
F = finish

THE BRIARS SKY

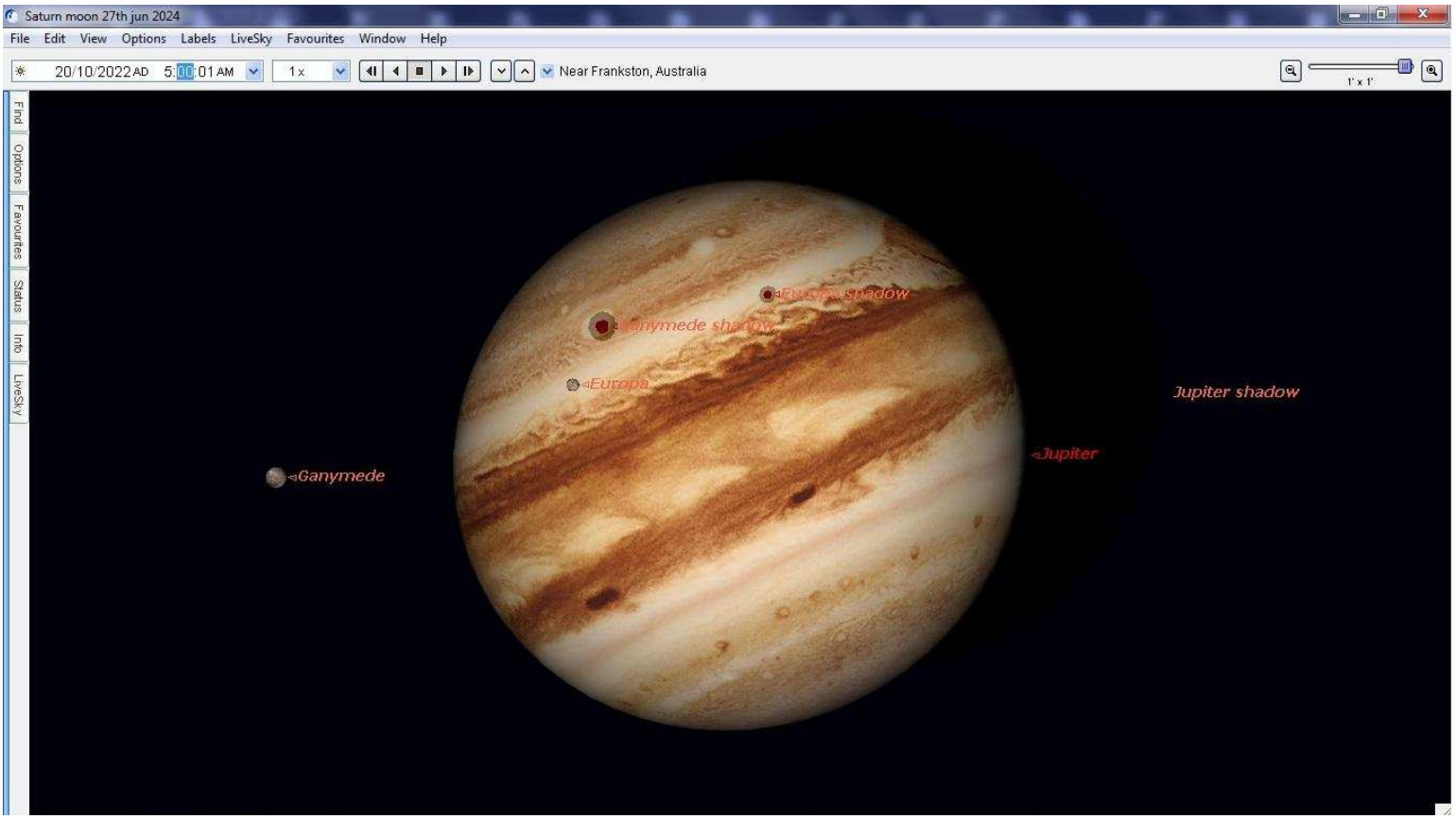
By Greg Walton

Mornington Peninsula Astronomical Society

Comet Panstarrs K2 2017 will pass in front of the Head of the Scorpion in September.
On sky chart below - The blue dots mark the position of Comet K2 in September.



On the morning of 20th October Jupiter's moons Ganymede and Europa shadow transit starts at 3:17am and finishes at 6:47am.
The best time to see Ganymede and Europa shadows is around 5am, see below.

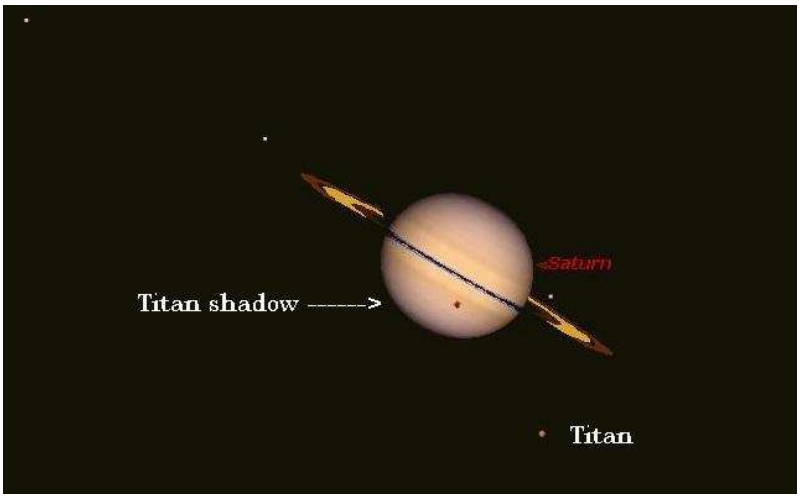


Saturn's Rings almost disappear 2024

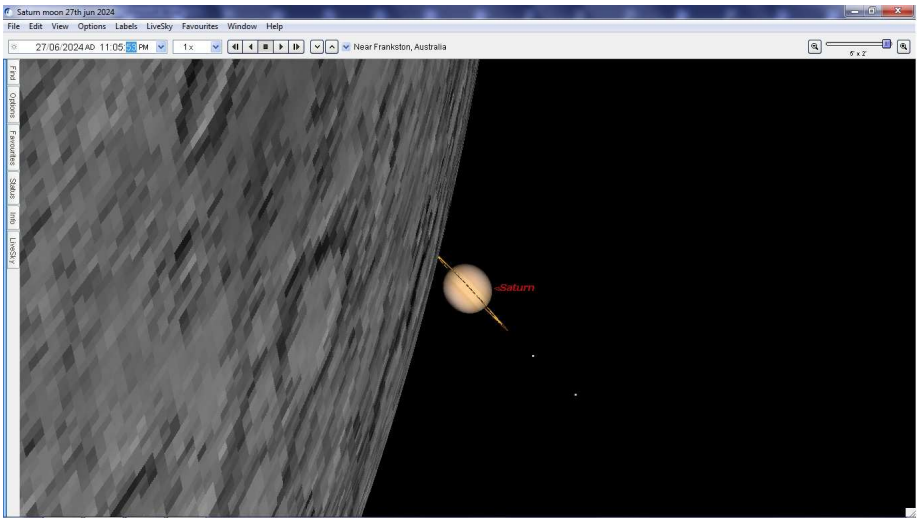
In just 2 years Saturn's rings will be edge on. They wont close completely because Saturn's orbit and the Earths orbit are tilted slightly different. If the orbits were on the same plan then the rings would seem to disappear.

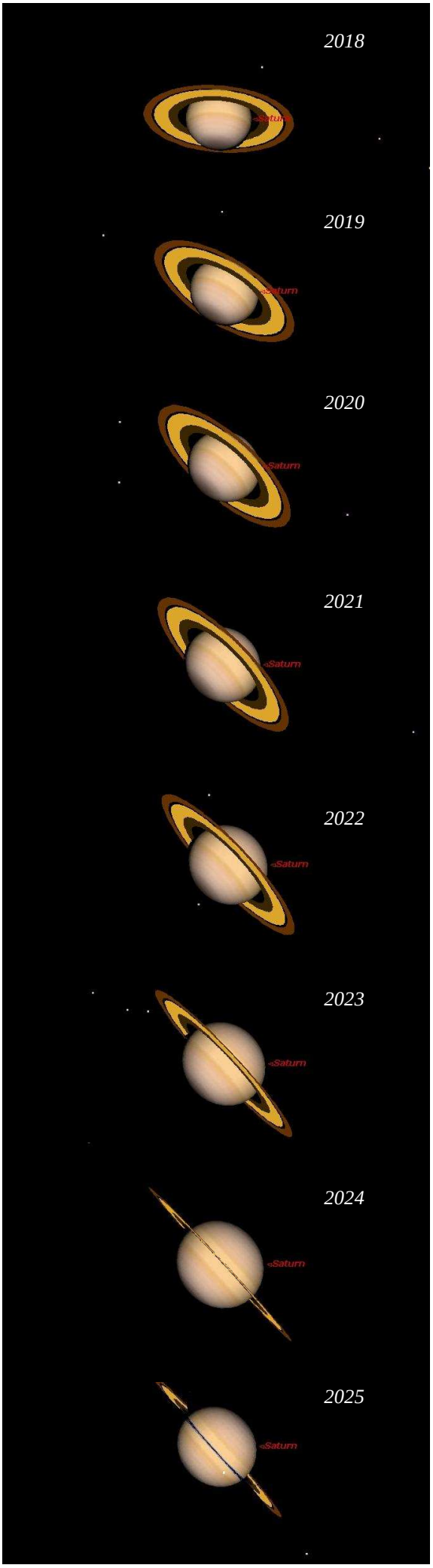
Saturn takes 29 1/2 years or 10,759.5 days to orbit the Sun.
During this time Saturn's rings will open and close twice.
This means Saturn's ring will move from open to closed in 7 years.
See images at right

When the rings are edge on, it's the only time in which you can see Saturn's moons pass in front of Saturn and Saturn's moons shadow transits. Though you need a excellent telescope, excellent seeing condition and lots of appearance. *See images at below*



At 11pm on the 27th June 2024 Saturn will graze the Moon. This rare event happens about ever 10 years because the Sun, Moon and planets all travel the same path across the sky.





Some facts about Saturn.

Sixth planet from the Sun.
Saturn shines at -0.4Mag that's almost as bright as Alpha Centauri
Saturn tilts at 26.73 degrees.
Saturn mean distance from the Sun 1,426,980,000 km.
Saturn's diameter 120,536 km.
Saturn's rings diameter 270,000 km and ring thickness is only 100 metres.
Saturn length of day 10.6 hours.
Saturn is moving around the Sun at 9.64 km per second.
Saturn has 82 moons.
Saturn's rings were first seen by Italian astronomer Galileo in 1610.

ASTRO NEWS

By Greg Walton

Mornington Peninsula Astronomical Society

Artemis, god of the Moon and Sister of Apollo.

Artemis program is very simular to the Apollo program, the main difference is that Artemis is more powerful due to the 2 added solid rocket boosters, the same ones used on the space shuttle. Artemis will lift the larger 5 metre diameter Orion capsule which can carry 4 crew members and has been under development for the past 20 years. Like on Apollo a service module is behind the capsule and provides life support systems and rocket engines. The service module will carry enough supplies to last up to 42 days, that's 4 time longer than Apollo. The service module will also carry solar panels which will unfold once it has left the earth's atmosphere. The service module will carry enough fuel to be able to turn the spacecraft around and head back to Earth if something had gone wrong, which wasn't the case with Apollo, as Apollo had to continue all the way to the Moon and then use the Moons gravity to slingshot it around the Moon and back to the Earth.

Like on Apollo the Orion capsule has an escape rocket attached to the front, in case something should go wrong during the launch this rocket would carry the capsule with crew to safely and parachute them back to earth away from the launch pad. This escape rocket also covers Orion's vulnerable windows and is ejected once the spacecraft leaves the earth's atmosphere. Only then will the crew be able to look out the windows. One of the major problems with Apollo was that as the fuel tanks reached near empty the rocket started to pogo, meaning the rocket engines pushed the spacecraft forward then almost stopped and then push forward again and again ever more violently. This pogo effect almost tore the rocket apart and made a very unpleasant ride for the crew, also the crew couldn't read the nameplate on the switches or read the gauges due to the shaking. The commander was told to keep his hand on the abort lever so at a moment's notice he could pull the level, which released the capsule and fired the escape rocket. But the Apollo 8 commander decided to keep his hand well away from the level, in case he accidentally pushed the level, the first people to travel to the Moon on Apollo 8 said. In all the simulation sessions they never practiced dealing with this pogo effect. How did NASA get it so wrong? We hope Artemis doesn't suffer the same effects and that's why there will be no crew aboard Artemis I this first flight.

The next mission Artemis II will carry 4 astronauts around the Moon, including the first woman and the first person of colour. These follow-up mission will be very different from the Apollo missions, as there is no time restraint or shortcut. Every step will need to work perfectly before the next step can be taken. It's also hoped, that the Artemis program can also take astronauts to the International Space Station and eventfully to Mars.

For now, gone are the days we thought we could reuse parts of the rocket and spacecraft, like in the space shuttle era. If you watch the launch videos from the Apollo missions, you can see the rocket engines bending and distorting. When the space shuttles returned to Earth you could see that most of the exterior was burnt and engines were damaged. Most of the time it's much easier to start with something new rather then to restore. In this day and age, everything is changing very rapidly with new ideas and technology almost on a daily basis; by the time a component is made it's already out of date.

One of the main concerns is that we are now moving into a time of solar maximum putting the crew in danger of radiation poisoning and spacecrafts instrumentation in danger of being fried. The Orion capsule needs to be as light as possible but still be able to shield the crew. Experimental materials made from foam containing chopped up very thin aluminium sheet have proved successful as shielding. Also, as in the Apollo era the crew needed to be around 40 years of age, or older and preferable to have already had children.

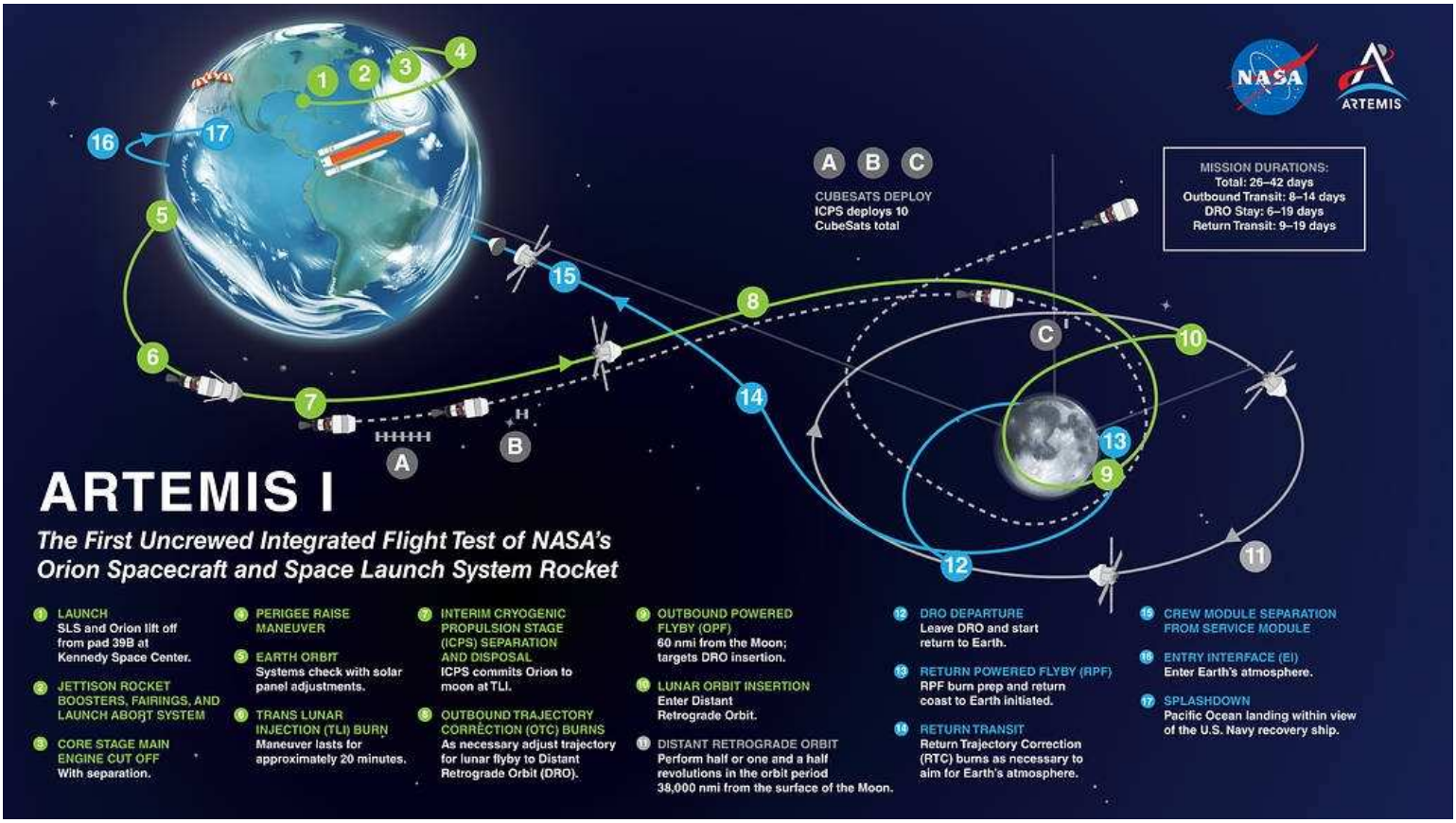
Behind the Orion's service module is space to transport the lunar Lander or on Artemis 1 the Cubesats which carry satellite to be deplored on root to the Moon.

You can see on the diagram below that the Orion spacecraft will orbit the Moon from a large distance and only swooping down close to the Moon's surface to drop off or pickup the lunar Lander. This means the orbiting Orion spacecraft can stay in contact with NASA control back on Earth all of the time, also saving fuel and increasing the safety of the orbiting crew.

Artemis 1 launch date is on the 29th August 2022 12:33 UTC and should land back on Earth on 10th October at 14:42.

Hopefully by the time you read this we should know if the launch was a success. *By Greg Walton*

All images from the NASA website



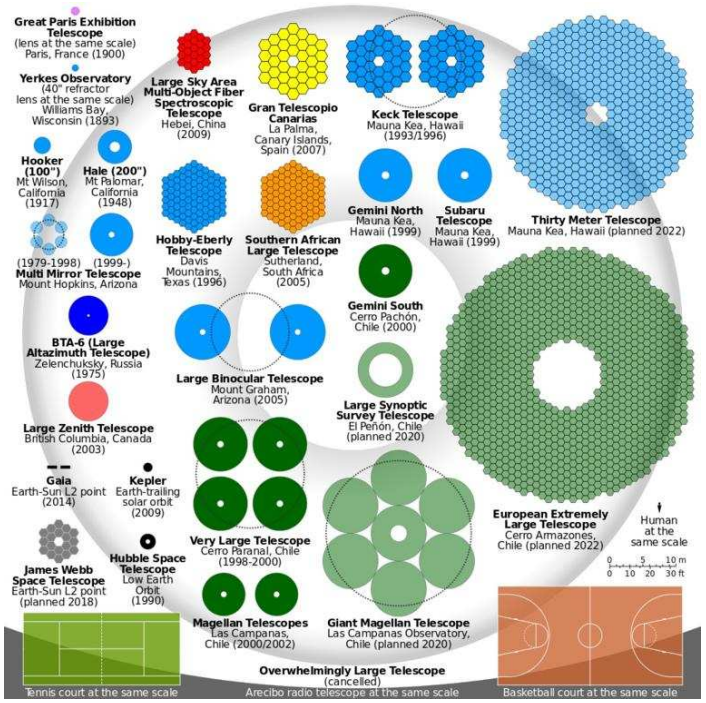
Soon to be the Biggest Telescope on Earth?

The European Southern Observatory (ESO) is building an extremely large telescope (ELT). It has been designed to look for extrasolar planets and be able to look directly at them, also to help pin down the exact age of universe. Expected to be completed in 2027 and if all goes well should be equal to the James Webb Space Telescope (JWST).

Located in Chile at Cerro Armazones, Atacama Desert at an altitude of 3046 metres. The billion dollar project is funded by a consortium of European countries. Before the project could start, 220,000 cubic metres of rock had to be trimmed off the top of Mt Armazone to make the 300 x 150 metre flat area for the telescope and an 18 metre deep crater at its centre to house equipment. *See next page*

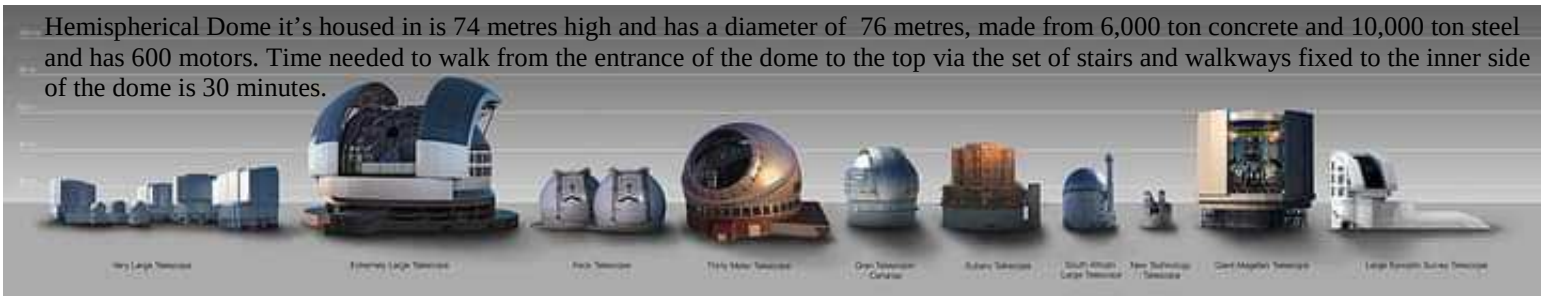
Main mirror made of glass-ceramic Zerodur® has a diameter of 39 metres, giving it a light collecting area of 978 square metres, making it 13 times larger then any other telescope. The main mirror weights in at 132 tons and is made up of 798 segments, with each having 6 motor to adjust their alignment. Every segment has a slightly different curve depending on its position in the array and polished to an accuracy to within one 10,000 thousandth of the thickness of human hair. The tilt and position of each segment will be monitored by sound waves; light or lasers could not be used as that would degrade the image. If a segment is misaligned then the sound frequency would be wrong and the computer would automatically make an adjustment, these corrections will take place a thousand times every second. Each segment also has edge sensors that will measure the relative positions of the segments.

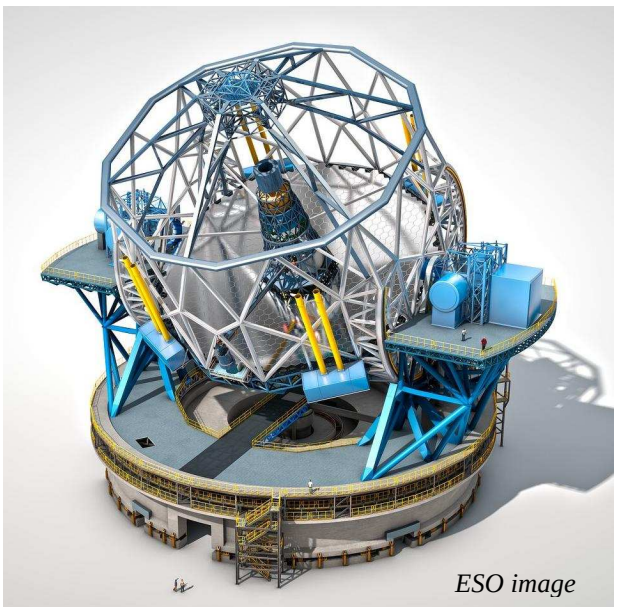
The secondary mirror is also massive at 4.2 metres in diameter, with the other four mirrors having a total weight of 8 tons. The extra mirrors send the collected light to the various cameras and instruments. The telescope has a very small field of view, only 10 arcminutes i.e. view of 1/3 of the diameter of Earth's Moon. ELT will not just be optical it will also be able to take near-infrared images simular to the JWST.



ES0 image

Hemispherical Dome it's housed in is 74 metres high and has a diameter of 76 metres, made from 6,000 ton concrete and 10,000 ton steel and has 600 motors. Time needed to walk from the entrance of the dome to the top via the set of stairs and walkways fixed to the inner side of the dome is 30 minutes.





ESO image

ESO - Artist impression

Aerial view - https://youtu.be/Oku2QqTSZqk
ELT video - https://youtu.be/4YZpxnobYEs
ESA - https://youtu.be/H09bZCuwEzM
ESO - https://elt.eso.org/

ELT Webcam - https://elt.eso.org/about/webcams/

ESO image

YOUR ASTRO QUESTIONS

Who is James Webb?

James Edwin Webb ran NASA, then a fledgling space agency, from 1961 to 1968, playing a major role in the Apollo program. Prior to his role at NASA, he served with the Truman administration during a period in the 1950s now known as the Lavender Scare.

In 1992 Webb was an American government official who served as Undersecretary of State from 1949 to 1952. He was also the second appointed administrator of NASA from February 14, 1961, to October 7, 1968. Webb led NASA from the beginning of the Kennedy administration through to the end of the Johnson administration, thus overseeing each of the critical first manned missions throughout the Mercury and Gemini programs until days before the launch of the first Apollo mission. He also dealt with the Apollo 1 fire.

Born on October 7, 1906 - Died on March 27, 1992 (aged 85)
Education at the University of North Carolina, Chapel Hill (BA) George Washington University (JD)
Had 2 Children.
Resting place Arlington National Cemetery
Military service United States Marine Corps
Years of service 1930–1932 / 1944–1945

Webb was played by Dan Lauria in the 1998 miniseries From the Earth to the Moon and by Ken Strunk in the 2016 film Hidden Figures.

NASA's James Webb Space Telescope (JWST), originally known as the Next Generation Space Telescope, was renamed in Webb's honour, in 2002. Launched on December 25, 2021, it is described as the successor to the Hubble Space Telescope.

In March 2021, a commentary in urged NASA to rename the James Webb Space Telescope, alleging that Webb had been complicit in the State Department's purge of homosexual individuals from the federal workforce. This controversy was widely reported in the press. Scientists who opposed naming the telescope in Webb's honour pointed to the case of NASA budget analyst Clifford Norton, who in 1963 was accused of homosexual behaviour, arrested and fired, with NASA calling his suspected conduct "immoral, indecent, and disgraceful". Personnel matters fell under the purview of the Deputy Administrator of NASA ; direct evidence of Webb's knowledge of Norton's firing has not come to light. Such firings may have been "custom within the agency" in that era. Historian David K. Johnson, author of 2004 book The Lavender Scare, has stated that there is no evidence Webb led or instigated any persecution, nor played "any sort of leadership role in the lavender scare". According to astrophysicist Hakeem Oluseyi, the initial accusations that Webb was part of the lavender scare were based on a quote from John Peurifoy (who, like Webb, had the rank of "Undersecretary of State") which was wrongly attributed to Webb.

In an email obtained via the Freedom of Information Act (FOIA) by Nature in March 2022, a name-redacted intern working with NASA's chief historian Brian Odom and NASA Communications Specialist Catherine Baldwin stated "that Webb played a leadership position in the Lavender Scare is undeniable."

Other sources call into question the intern's conclusions. In March 1952, just after Webb left the Department of State, the New York Times reported that 126 government officials had been discharged. By April 1953, that number had quadrupled as 425 were discharged, so the claim that the firings of LGBTQ workers ended when Webb left State is not supported by the data. In April 1953, about a year after Webb had left the State Department, President Dwight D. Eisenhower signed Executive Order 10450, greatly expanding the Lavender Scare program and leading to thousands of dismissals. The author of the book cited by the intern, David K. Johnson, had told the Washington Post in 2021 that "he knew of no evidence that Webb played a lead role in the movement."

On September 30, 2021, NASA announced that it would keep the JWST name after running an investigation and finding "no evidence at this time that warrants changing the name".

Former administrator Sean O'Keefe, who made the decision to name the telescope after administrator Webb, stated that to suggest that Webb should "be held accountable for that activity when there's no evidence to even hint [that he participated in it] is an injustice".

Above information from Wikipedia

Hi Everyone,

Just wanted to say thanks to Greg and the MPAS committee. A few months ago they allowed me to purchase a damaged 8 inch scope for parts. A friend's son was interested in making his own scope so we used the optics and focuser to build the instrument, pictured. It's an F5 version of the one I've written about in the newsletter. We had a lot of trouble finding a suitable mirror at a reasonable price so getting these parts from MPAS was a great help.

Hopefully I can persuade Tom to bring it to the Briars one night. We were very happy with the main mirror. I tested it against my optical flat and it looked excellent. Tom's just getting into the hobby and is enjoying the scope already.

Rod Brackenridge.

Ruby Crucis.

When we are asked to associate carbon with a gemstone, we immediately think “diamond”. But in the Southern Cross, there is a star forging carbon in its core and it more closely resembles a Ruby. DY Crucis, also known as “Ruby Crucis” thanks to its deep red colour, is what is known as a Carbon Star.

It is located very close to Mimosa (Beta Crucis), the second brightest star in the Southern Cross, and is only about 2.5' to the West of it. For comparison, the angular size of the Moon is 29.6'.

MPAS member Robin Broburg brought it to my attention during a public event at the Briars in May, and we were just able to make it out in the 127mm Refractor at the Briars. It was quite faint and its reddish hue was barely noticeable at the lower magnification.

Figure 1 Mimosa (Beta Crucis), the second brightest star in the Southern Cross is the brightest star in this image. The red star just to the right of Mimosa is DY (Ruby) Crucis. Also in this image is NGC4755, the Jewel Box cluster.

So, what is a carbon star?

A carbon star is a Red Giant which has started fusing lighter elements into carbon in its core. When this occurs, some of the carbon created in the core makes its way into the outer layers of the star via convection currents, and into its atmosphere. If carbon molecules become dominant in the star’s atmosphere, the star is known as a “Carbon Star”. Carbon stars are rare, as more often than not oxygen molecules will be more dominant in the atmosphere of stars at this stage in their life cycle. But when carbon dominates, it reacts with the oxygen creating CO and other carbon compounds which absorb and scatter the blue parts of the spectrum while allowing the red light to pass through, giving the star a deep red appearance.

Figure 1. Taken at the Briars using my 80mm Refractor with .8 Reducer / flattener and my DSLR. Stack of 20 x 20 sec exposures

Figure 2. Taken from my backyard in Seaford using the MPAS’ 120mm Refractor with a 2x Barlow and my DSLR. Stack of 20 x 20sec exposures.

Mimosa: RA: 12h 49m 1.67s, Dec: -59^{o} 48’ 36.1”

DY Crucis: RA: 12h 48m 43.02s, Dec: -59^{o} 58’ 57.7”

By Chris Kostokanellis.

Figure 2 Mimosa and DY (Ruby) Crucis.

MEMBERS GALLERY

Right -
Took advantage of the clear skies to capture some dragons. NGC6188.

By Chris Kostokanellis

Saturn - Connected my 5x Powermate and my little Canon M10 to the scope tonight to capture this tidy shot of Saturn.

Chris Kostokanellis

Moon - Some more magnification and you can see the shadow cast in this crater and the ejected material around it.
By Chris Kostokanellis

Right

Quick photo of the Trifid M20 nebula.

By Ben Claringbold

Below - Had a go at the Omega Nebula (M17) last night but it went into a tree before I could get much time on it, *by Ben Claringbold.*

Lobster Nebula NGC 6357 in SHO, very complicated process using mono
channel from the Optolong L-extreme as a synthetic Sulphur channel.
ZWO 294MC Pro
TS APO 130 reduced x0.75
10 hours of 300 and 600 second subs
ZWO asiair
Skywatcher NEQ6 Mount
Astropixel processor for channel separation and stacking
Photoshop

By Nik Axe

Cat's Paw aka Bear Paw Nebula NGC6334
SHO, process using mono
channel from the Optolong L-enhance as a synthetic Sulphur channel.
ZWO 294MC Pro
TS APO 130
3 hours of 300 and 600 second subs
ZWO ASIAIR
Skywatcher NEQ6 Mount
Astropixel processor for channel separation and stacking
Photoshop

By Nik Axe

Aurora on the 19th July 2022 taken from the Blowhole track Flinders, top 20mm lens, below 10mm lens, *by Greg Walton*

Right

Three clear nights in a row this week! I managed to get around 9 1/2 hours on M16, the Eagle Nebula. I'm not sure about the processing so here are three different versions.

10" Newtonian, AZ-EQ6, ASI294MC Pro, L-extreme filter, 288x120sec, processed in PixInsight.

Giudo Tack

Below - ISS passes the Moon. Viewed from Chelsea, it just missed… But I'm very happy with this anyway. *By Guido Tack*

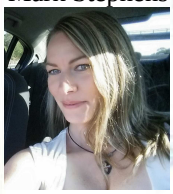
Jupiter this morning after 5am - 6th July 2022, under average seeing, that seemed to get worse towards sunrise. I had to overcome a few tech issues, so it was only a short run of 18 minutes of video per photo. ZWO ASI290MM, with C14, G11 and de-rotated in Winjupos then processed in Registax & PhotoShop. Finished with frozen fingers! *By Dominic Lucarelli*

Jupiter this morning after 5am, only a short run of 12 minutes of video when the seeing seemed slightly better, ZWO ASI290MM, RGB filters, with C14, & G11. De-rotated in Winjupos with processing in Registax & Photoshop. Finished with frozen fingers, again ! (but I will try again on Thursday morning.. I'm a sucker for punishment). *By Dominic Lucarelli*

SOCIETY INFORMATION


Peter Skilton


Mark Stephens


Nerida Langcake


Jamie Pole


Anders Hamilton


Trevor Hand


Chris Kostokanellis


Guido Tack


Simon Hamm


Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

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Vice President: Mark Stephens
Committee: Anders Hamilton, Trevor Hand, Guido Tack, Simon Hamm and Ben Claringbold

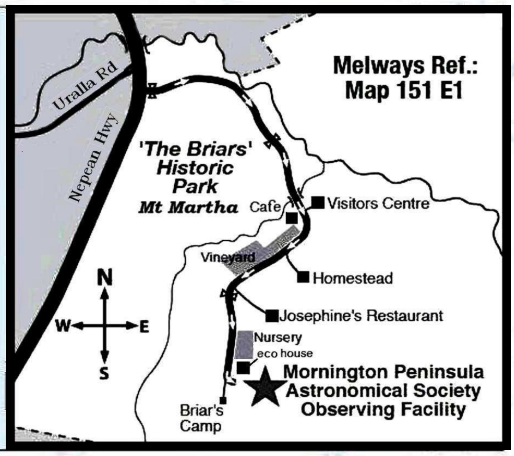
Secretary: Nerida Langcake
Treasurer: Jamie Pole
Web master: Guido Tack
Scorpius editor: Greg Walton
Librarian: Fred Crump

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



LIBRARY


Fred Crump

The Society also has books & videos for loan from its library, made available on most public & members nights at The Briars site. Contact Fred Crump 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 say that you want to join E-Scorpius & you will be added to the E-Scorpius list.

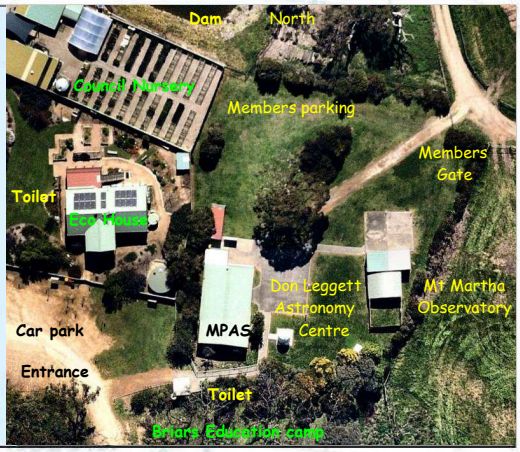
facebook
MPAS members - https://www.facebook.com/groups/MPAS1/
MPAS - https://www.facebook.com/mpas0/

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:
Internet: www.mpas.asn.au
email: welcome@mpas.asn.au

Phone: 0419 253 252
Mail: PO Box 596, Frankston 3199, Victoria, Australia



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

SCORPIUS **The journal of the Mornington Peninsula Astronomical Society**