



Cover image: Insight Astronomy Photographer of the Year 2018.

Galaxy section award winner by Steve Mohr.

NGC3521 Mysterious Galaxy.

See the whole story on page 16.

# 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**

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# SOCIETY NEWS

By Greg Walton



## astronomy evenings are out of this world

If you've ever yearned to learn more about the night sky, the Mornington Peninsula Astronomical Society's public astronomy evenings are definitely for you. They're held on the first Friday of every month at the MPAS Observatory Centre at The Briars in Mount Martha — the only registered observatory on the Peninsula — and are great fun for the whole family. Even the littlies get a thrill from holding a meteorite or looking through a telescope, and there are multimedia presentations with animation and videos that are as entertaining as they are informative.

The astronomy evenings start at 8pm with a multimedia talk and Q&A, during which you'll be able to ask any astronomy-related questions you have, before moving outside to view the moon, planets such as Venus, Mars, Jupiter and Saturn, interesting stars and clusters, and bright satellites and the International Space Station through a wide array of telescopes supplied by society members. Free light refreshments are also provided.

Please dress appropriately for being outdoors and on a grassy or uneven surface, and for more information, bookings and a map, visit the society's website at [mpas.asn.au](http://mpas.asn.au)

**The quarterly SCAG night** (Scout, Cubs and Guides) went ahead on 24th October. A fairly clear evening greeted 24 cubs from Sorrento, Rosebud and Toogarook that night at The Briars. An expected contingent of the same size from Langwarrin, however, didn't appear. The talk indoors was given by Peter Skilton and had lots of questions arising from the cubs. Outside with telescopes and observing were Peter & Finn Cracknell, Phil Holt, Peter Lowe, David & Jamie Rolfe, Jamie Pole and Fred Crump. Saturn was very popular with the visitors.  
*Regards, Peter Skilton*

**Public Night November 2nd** - saw 52 in attendance, with 10% cloud cover, so some observing with the instruments in the observatory was possible. The talk indoors was given by Peter Lowe, with a good number of members providing valuable help outside. The new sky condition photometer, commissioned from a European University in Madrid, was up and running and broadcasting to the internet in real time, once a minute, as part of a global network. You can see its output at <http://www.mpas.asn.au/photometer.html> which shows sky brightness and cloud cover so you can check it out before venturing down to The Briars and being surprised. I'll write something up about it in a future edition. *Regards, Peter Skilton*



**YMCA Camp Manyung November 9th** - The group consisted of about 17 young adults, many with various disabilities and attention difficulties, who had been arranged by YMCA Weekender Escapes. Some were knowledgeable and knew of the largest multi-segment telescopes under construction, so this was by no means a typical audience. Indoors, Peter Skilton first handed the meteorite around, then Peter Lowe delivered an interactive talk once some technical fun with cabling in the room had been sorted out by Simon Hamm and the camp's representative. Nerida Langcake set up a loan telescope in the room so the audience could have a close look at it, then roamed through the seating area during parts of the talk, showing the visitors her night sky images snapped on her Samsung phone camera. Nearby, Jamie and Ashley Grierson, armed with sticks, fended off the wildlife. *Regards, Peter Skilton*

**Society Meeting 21st November** - saw 20 members in attendance. Peter Lowe chaired the meeting and talked on "Looking for life in the universe". Afterwards members chatted over coffee. No viewing due to clouds.

**Members BBQ 24th November** - saw approximately 25 members in attendance, who brought along a good range of delicious salads and desserts. Many thanks to all the members helping out in the kitchen and cooking on the BBQ, also to Piper, Jamie and Ashley Grierson who set up the chairs and tables, and once again special thanks to Bonny who washed lots of dishes. Manfred Berger opened the observatory for some viewing on the telescopes. Dave Rolfe, Paul Albers and Jamie Pole had a play with their amateur radio equipment before calling it a night. Also Helmuth Schultes took some amazing photos of the rising Moon with his 3000mm lens. *Regards, Nerida Langcake*



**Public Night December 7th** - At the December public night there were 36 visitors, plus members on top of that, under typical warm Melbourne Summer conditions, with a few mozzies, moths and beetles. Unfortunately, the cloud cover was total all evening as a cool front approached, and the hot weather and cloud cover no doubt contributed to a reduced turnout on the night. Trevor Hand trialled his new talk indoors in air-conditioned comfort on southern sky objects, ahead of presenting it to the passengers on his next cruise gig. He now won't return until the middle of January as he bobs around on the high seas again.

Outdoors helping with keeping everything in order were Simon Hamm, Greg Walton, Jamie Pole, Mark Stephens, Nerida Langcake, Piper, Jamie and Ashley Grierson, Peter Skilton, Fred Crump, Peter Lowe, Helmuth Schultes with his new camera with 3000mm lens. And Anders Hamilton got the sky photometer up and running again after a glitch with Telstra. We also had several newer members present, including Marylou and Brett Fernandez, Francis, Emma and Oliver Evans, Chiara Magagna, Stephen Edwards, Tamara Dennett and possibly a couple of others I've missed.

Helmuth also brought along his Moon nightlight, which is based on NASA topographic data and is an accurate depiction of the Moon's shape, craters and surface. Nerida's family also has a couple of these impressive-looking illuminated models which are appearing in the shops at the moment (see image to the right). They are dimmable and rechargeable via USB cable. They could prove useful on desperately cloudy nights if the Moon is put on the other side of the field and the telescopes pointed to it!

*Regards, Peter Skilton*



**Members Xmas BBQ December 15th** - MPAS Xmas party was a great success with about 40 members in attendance. Thank you to everyone who brought along desserts and nibbles. Also a massive thanks to all the helpers who ran the BBQ, set up the food and washed up afterwards. We must thank Pia for buying in all the supplies and cooking 3 different types of roast meat & veggies. The sky cleared, so the observatory was opened with the newly acquired camera fitted to the ED80 refractor pointed at the Moon. The image was sent to the projector in the big shed, using a wireless set-up. The Moon looked sharp against a blue daytime sky. We also had the big refractor running on the lower slab and Bob and Mark had telescopes set up on the upper slab. We did a group photo in front of the domed observatory and a brief talk from the VP, before we all headed inside to the dessert table. Sorry I didn't get around to talking to everyone. MPAS wishes you all a Merry Christmas and a Happy New Year. Thank you for your support throughout the year. *VP Greg Walton*



By John Cleverdon





## Vale David Girling 15th November 2018

I wish to relay the sad news that David Girling (aka David Murray to long-term members) passed away this morning in hospital at the age of 52 following an ongoing illness. David first joined the Society when it was the Astronomical Society of Frankston in 1985, built his own observatory in Mornington and experimented with the new-fangled video astronomy some years later. He was President of the Society in 1992, and Vice President during 1990, 1992, 1996, 1997 and 2002, serving on Committee for 8 years.

We had a small BBQ get-together with the family on the 14th at the Briars.

*Regards, Peter Skilton*

David was most likely the reason we are now located at the Briars. Some 30 years ago a small group of ASF members (Astronomical Society of Frankston) used the Briars for observing, as the Briars was the darkest sky site close to Frankston. After some inquiries the Shire of Mornington agreed to lease the ASF a small piece of land on top of a hill at the Briars for \$99 per year. The Briars also gave us the use of the visitors centre on the first Friday of the month, which have become our very popular public viewing nights. David was very keen on teaching newcomers on how to use their telescopes and started the

Telescope Learning Day back in 2001. David was also one of the members who pushed for the society to change its name to the Mornington Peninsula Astronomical Society, as at the time the shire of Mornington was happy to help the society and the new name gave the society a broader area from which to draw its members. As David's health failed he could no longer attend the Briars, but we are sure he is still watching over us, reading all the newsletters and congratulating us on all the improvements we have made.

**14th December 2018.** David wished that his family and friends could see where he spent much on his time pursuing his hobby. So MPAS invited 50 of David Girling family & friends to the MPAS Briars site for a BBQ and to meet the members with whom David associated. After the BBQ David's uncle spoke about his life. Peter Lowe spoke about his time at ASF later MPAS .... David's daughter read a poem. Then there were many desserts on offer. It was a shame that we couldn't look through the telescopes due to cloud; hopefully the family will return one day. The family wished to thank MPAS for a great night to remember David and carry out his wishes. *VP Greg Walton*



*Photo Richard Pollard*



David working Bee 1999



David talking at TLD 2003



David at working Bee 2013



David whipper snipping 2000







## Current Sky Data @ The Briars

MPAS is currently contributing to a worldwide study being run by the Astrophysics department of the Universidad Complutense de Madrid in Spain.

The initiative is a European project called Stars4All, and our site at The Briars has been chosen to be a part of a worldwide network of photometers, measuring the sky brightness evolution with time.

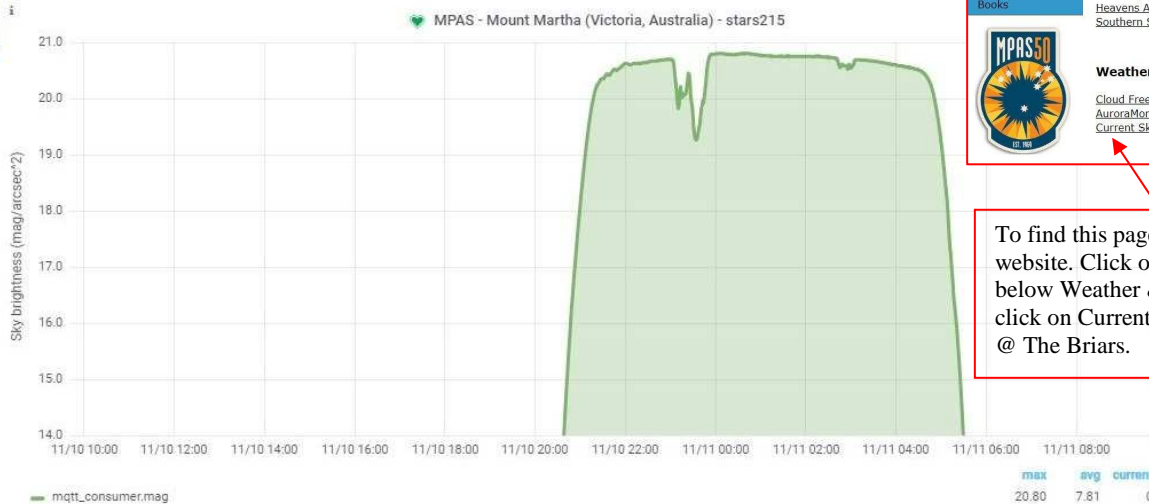
We have been supplied with a photometer, which has been mounted on the roof of the Peter Lowe observatory. The photometer collects data at one minute intervals (24x7), and sends these data to the Spanish university's server, for input into the Stars4All project.

Among the measurements the photometer collects, are sky brightness and cloud cover. These two data sets are graphed below.

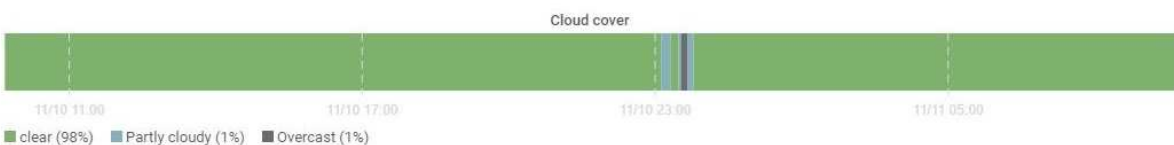
[Refresh this page](#) to include current data.

### Current Sky Brightness

[View fullscreen](#)



### Current Cloud Cover



### Map of photometers in the Stars4All network



You will need to drag the map around to see Australia. [Link - http://www.mpas.asn.au/photometer.html](http://www.mpas.asn.au/photometer.html)



VASTROC 2019  
Members  
Gallery  
Links  
Contact

Snake Valley Astronomical Association  
Astronomy Benalla  
Astronomical Society of Geelong  
Astronomical Society of Australia

#### General Astronomical Links

Tips & Tricks  
Books

Planetarium at Scienceworks  
Ice-in-Space  
Heavens Above (Satellite Locating)  
Southern Skywatch



#### Weather & Aurora Links

Cloud Free Night  
AuroraMon  
Current Sky Darkness @ The Briars

To find this page on the MPAS website. Click on links, then below Weather & Aurora Links, click on Current Sky Darkness @ The Briars.

- Home
- Public Nights
- Schools / Groups
- Astrophotography Workshop
- Events
- Society Magazine
- VASTROC 2019
- Members
- Gallery
- Links
- Contact

- Tips & Tricks
- Books



**MOON PHASES**

SUN 11TH NOV

WAXING CRESCENT  
15% / 0.5

MOONRISE  
**11:51**

MOONSET  
**20:11**

MoonPhases.co.uk

Current Moon Phase



Get the code by ABS



# President's report

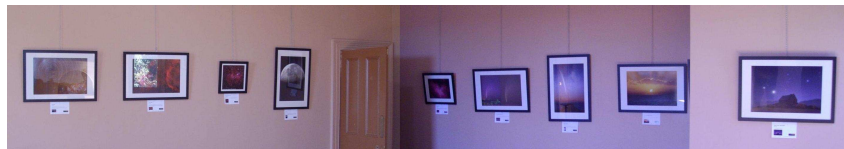
## Looking Back at 2018.

Another full year at MPAS with the purchase and installation of a 2.3 metre Sirius domed Observatory. Also we saw the return of Big Blue 8 inch F10 refractor telescope and the replacement of the old fridges with a large commercial unit.

The transition of the society meetings to the Briars went without any glitches. These are attracting good numbers with many guest speakers talking on a wide range of astronomical topics. We have also installed a PA system and purchased a new projector for outside presentations.

The members BBQ which are held on the Saturday after the society meeting continue to be popular. Members talk about their astronomical experiences & exchange ideas. Also a chance for members to use the computerized telescopes in the Peter Lowe observatory and complete their training.

MPAS visited many schools, scout groups and public events throughout the year. We attended the science fair at Coolart Somers and also had 52 photographic images that members had taken on display there for a month.



Again this year we have had record-breaking numbers at the public viewing nights held on the first Friday of each month. One night we had 180 members of the public in attendance, where we ran 2 talks at once, with 100 in the big shed & the rest getting their presentation & talk under the stars. At the Stargazing Live 23rd May we officially had 201 people registered for the count of the Brian Cox/Julia Zemira TV programme series; pity it was cloudy at the Briars on the night.



## Looking forward to 2019.

The MPAS society meeting will have the same format on the third Wednesday of the month except in December. As always, we will have the chance to do some viewing through the MPAS telescopes in the Peter Lowe observatory, if the sky allows.

Members can borrow books from the MPAS library at the society meetings and Members BBQs.

Over January we will be running public viewing night on the first, second, and third Friday; and if demand requires possibly the fourth Friday as well. If you wish to help at any of the MPAS events, public nights or school viewing nights & are not certain where to start, just say you wish to help, to the president or any committee member. We will find you a job & show you the ropes or telescopes in this case.

This year Telescope Learning Day is on Saturday 23rd March starting at 4 pm followed by a BBQ at 6pm. This is a public event, so we need members on hand helping newcomers with their telescopes. There will also be some solar viewing.

MPAS will be having its 50 years anniversary on the 20th July. This date is also the same date when man first walked on the Moon 50 years ago. We will have the society dinner on that night and no doubt some speeches will follow. We also hope to have commemorative tee shirts on sale.

August will be a massive month for MPAS as we are hosting VASTROC (Victorian Astronomy Convention) from the 9th to the 11th. We have hired the Briars Outdoor Ed. Camp located next to the MPAS Astronomy Centre, so visitors can stay on site and it gives us the opportunity to run 2 lectures at the same time. As part of VASTROC we will be running our very popular Astrophotography Workshop on the 10th starting at 1pm. VASTROC will also be run as part of National Science Week 10th to 18th August. And on the 17th August we are having an Astro Concert with a live band playing our favourite astronomy theme tunes!

Ahead of National Science Week we will have 2 Working Bees & BBQs on the 3rd & the 4th August. The main job will be cleaning up the kitchen and lecture theatre. There will be some smaller jobs such as maintenance of the telescopes, cutting the grass, pruning the trees & tidying up the mower shed.

MPAS Yahoo Groups is migrating its members' communications to Groups.io this December. See next page.



## Important Message about MPAS and YahooGroups

MPAS is migrating it members' communications to Groups.io this December.

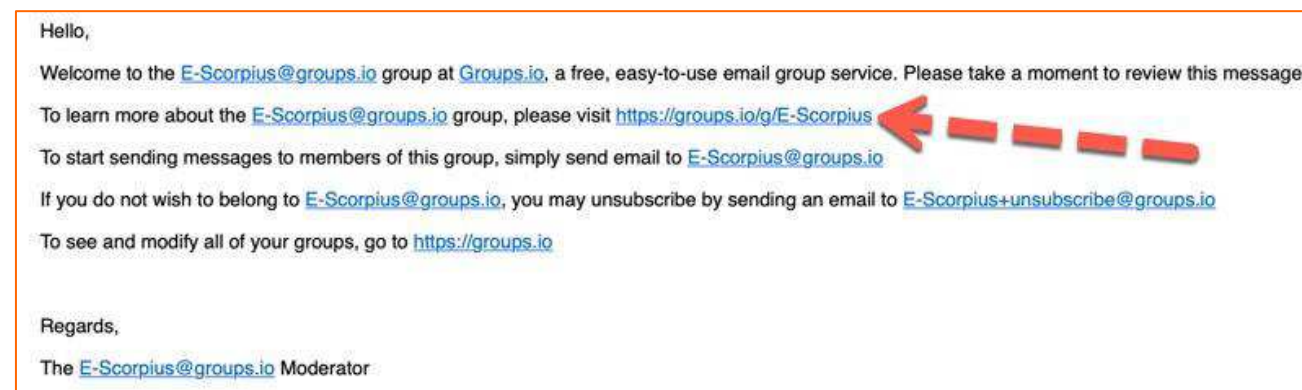
The committee have been using the system for the past year and have found the system to be more reliable than the Yahoo Groups, which is no longer being actively supported by Yahoo and consequently we have been experiencing problems with members joining & the calendar reminders in particular. Additionally, our original YahooGroups 'owner' is no longer contactable; hence we can no longer upgrade or maintain the system.

**MPAS Procedure** – Emails have been sent out since December with your login details with a message 'Welcome to E-Scorpius@group.io'. Click on the link in the email as shown.

Groups I/O will load as shown

Click Log-In if you are already a member (Green Button).

On the next page click on and enter your email address (as used in Yahoo Group).



Groups I/O will load as shown

**MPAS Members** E-Scorpius@groups.io

**Group Description**

A community for the use of Mornington Peninsula Astronomical Society members and close associates, to share information, post messages, display astrophotography, add events to the calendar, organise Society activities and much more....

**Group Information**

- [www.mpas.asn.au](http://www.mpas.asn.au)
- 15 Members
- 4,279 Topics, Last Post: Nov 25
- Started on 6/22/01

**Group Settings**

- All subscribers can post to the group.
- Posts to this group do not require approval from the moderators.
- Messages are set to reply to group.
- Subscriptions to this group require approval from the moderators.
- Not listed in the Groups.io directory.
- Archives are visible to subscribers only.
- Wiki is visible to subscribers only.
- Members can edit their posts.
- Members can set their subscriptions to no email.

**Integrations**

No integrations.

[+ Apply For Membership In This Group](#) or [Log In If You Are Already A Member](#)

**Message History**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	138	71	86	27	88	40	7	4	4	4	6	
2017	97	71	96	97	106	66	75	70	69	71	48	56
2016	34	48	57	52	39	43	15	74	48	56	58	81
2015	66	45	81	42	33	62	38	78	46	52	51	87

Click Log-In if you are already a member (Green Button).



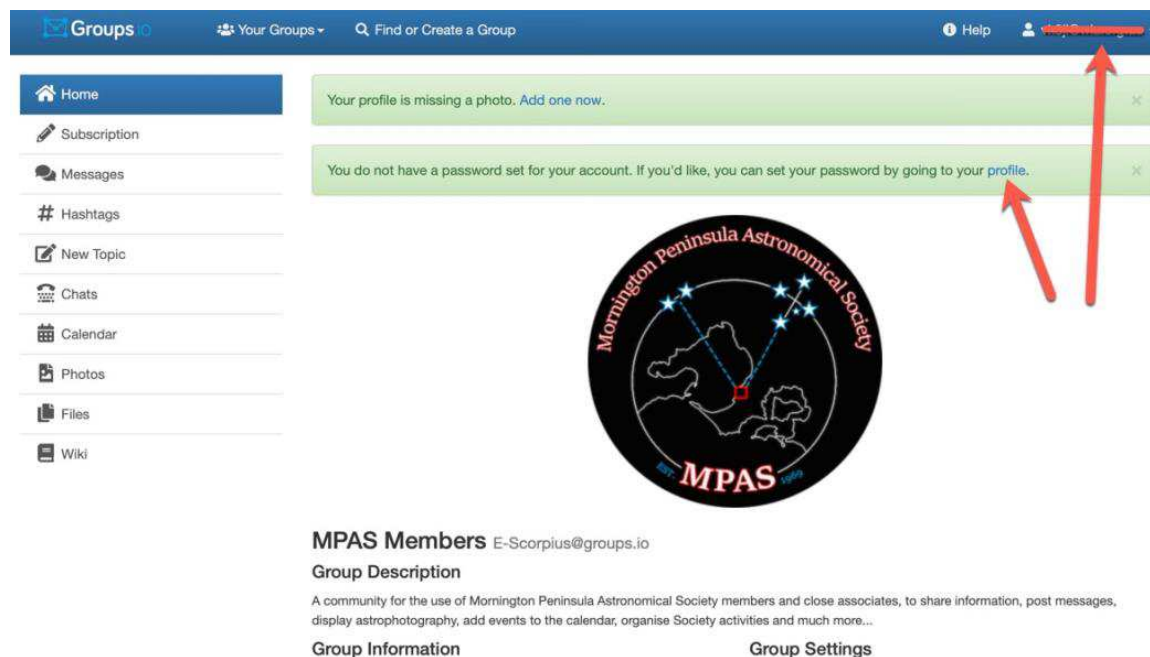
On the next page click on

and enter your email address (as used in Yahoo Group).

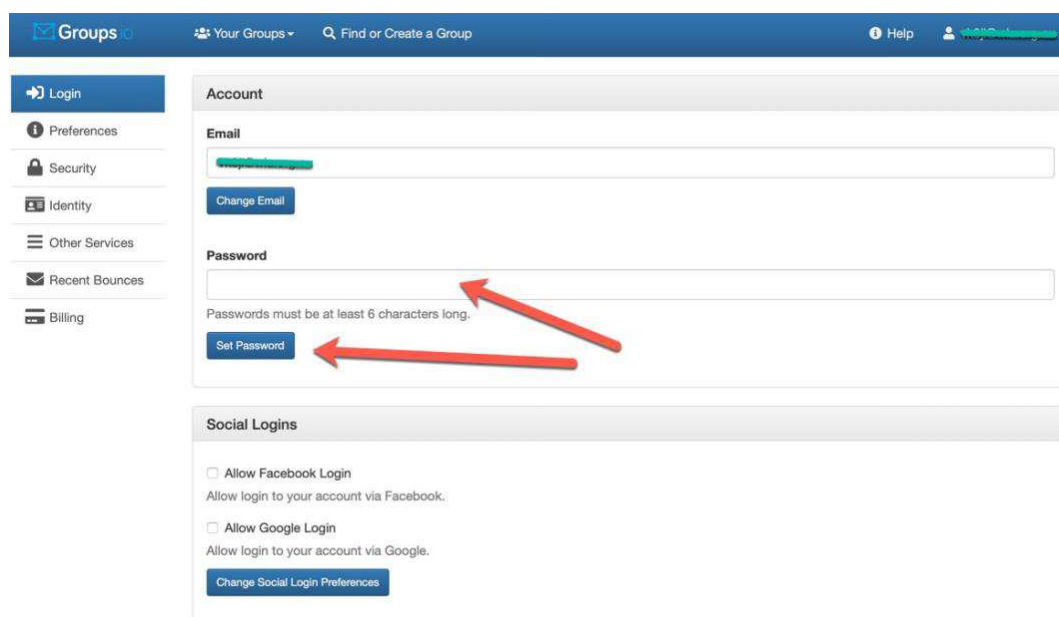
After doing this it will send you another log-in link by email.

An email has been sent to you with a link to log into your account.  
 The link is valid for 60 minutes; after that you will need to send another email.  
 The subject of the email is **Link to log into Groups.io** and it is sent from **noreply@groups.io**.  
 The email should arrive almost immediately; if you don't see it, please check your Spam folder.

You can now close your browser. This fresh email should arrive within a minute with a log-in link. The final compulsory step is to set your password (you can do this in the top right corner and selecting Account or by clicking the 'profile' hyperlink).



Enter your password (6 Minimum Characters) and click Set Password. Other options are there for the tech savvy social media integration for you to explore.



After this you can optionally go to Identity tab on the left sidebar and Set your Display Name and (it would be nice) add a Profile Photo.

*Note : If you wish to use an alternate email address, let us know by emailing us at [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au) so we can authenticate you, add your new email to the group and re-invite you.*



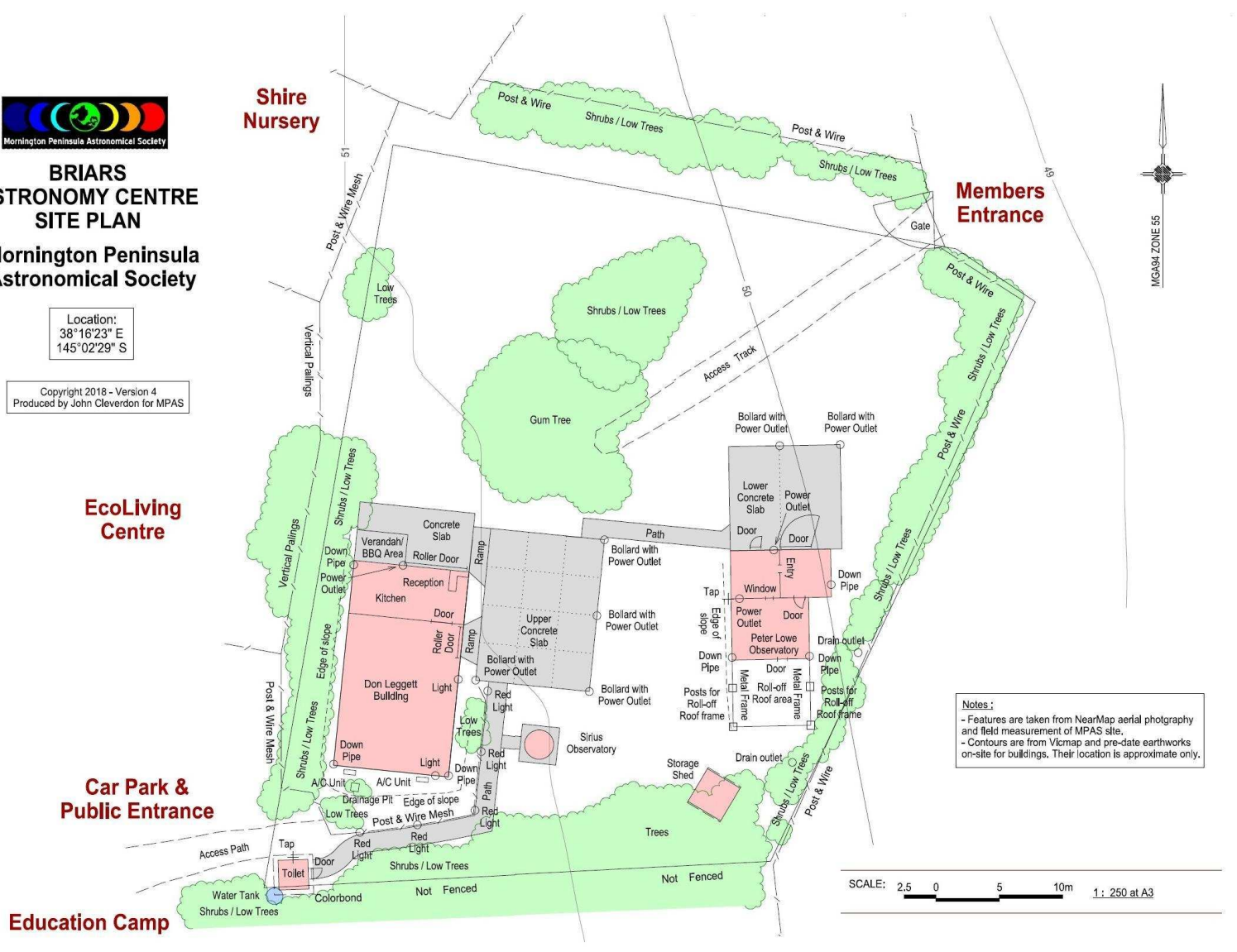


## BRIARS ASTRONOMY CENTRE SITE PLAN

Mornington Peninsula  
Astronomical Society

Location:  
38°16'23" E  
145°02'29" S

Copyright 2018 - Version 4  
Produced by John Cleverdon for MPAS



## New Members Welcome

Daniel Bardella  
Chiara Magagna, Francis, Emma and Oliver Evans  
Tamara Dennett, Stephen and Charles Edwards  
David Ward

Marylou and Brett Fernandez  
Lara Tumak and Rohan Mitchell  
Neville Perry



### PUBLIC NIGHT THANK-YOU

Recent public viewing nights and school viewing nights have continued to be very well received by the attendees. It is no coincidence that this is due to the efforts put in by the members that help out at these events. To everyone that has helped out over the past months, a very big thank-you goes to you all.

Your efforts are very much appreciated, and are being very well received.



### Scorpius editing team.

Members please write a story about your astronomy experiences and add some pictures.

**Send them to: Greg Walton**  
gwmpas@gmail.com

### MPAS SUBSCRIPTIONS 2019

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 2019 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 2019 fees is:

### SOCIETY FEES

Subscriptions can be paid in a number of ways:

- 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.

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](https://drive.google.com/file/d/0ByvkxzZG19g_NXZ4cWxHbERTdEE/view?usp=sharing)

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

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>



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



CALENDAR		January / 2019					Red Days indicate School Holidays	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
		1 New Years Day	2 Venus right of the Moon dawn	3 Jupiter right of thin crescent Moon dawn	4 Public Night 8pm	5		
6 New Moon	7	8	9	10	11 Public Night 8pm	12 Mars below the Moon		
13 Mars below the Moon	14 First Quarter Saturn & Mercury 2 degrees apart dawn	15	16 Society Meeting 8pm	17	18 Public Night 8pm	19 Members Night BBQ 6pm		
20	21 Full Moon	22	23 Venus & Jupiter 2 degrees apart dawn	24	25	26 Australia Day		
27	28 Last Quarter Australia Day Holiday	29	30	31 Jupiter right of the Moon dawn				

### Monthly Events

**Public nights** - 8pm start on the 4th, 11th, 18th @ the Briars

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

**Members Night BBQ** - 6pm on the 19th @ the Briars

CALENDAR		February / 2018					Red Days indicate School Holidays	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
					1 Public Night 8pm Venus above the Moon	2 Saturn right of thin crescent Moon dawn		
3	4	5 New Moon	6	7	8	9		
10	11 Mars below the Moon	12	13 First Quarter ASV Meeting Uranus & Mars 1 degrees apart	14 Valentines Day	15 SCAG	16		
17	18	19 Venus & Saturn 1 degrees apart dawn	20 Society Meeting 8pm Full Moon	21	22 Scorpius Deadline	23 Members Night BBQ 6pm		
24	25	26 Last Quarter	27	28 Jupiter above the Moon dawn				

### Monthly Events

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

**Public nights** - 8pm start on the 1st @ the Briars

**Society Meeting** - 8pm to 10pm on the 20th @ the Briars

**Members Night BBQ** - 6pm on the 23rd @ the Briars

**SCAG** - Combined Scout, Cubs & Guides 8pm start on the 15th @ the Briars

**Please... we need helpers to keep the MPAS Observatory open to members on all Saturday nights.**  
**If you can help, contact Greg Walton on 0415172503 or email - gwmpas@gmail.com**





# Mornington Peninsula Astronomical Society - 2019 Calendar

Day	January	February	March	April	May	June	July	August	September	October	November	December	Day
1	<b>T</b> New Years Day	<b>F</b> 8pm Public Night	<b>F</b> 8pm Public Night	M	W	S	<b>M</b>	Th ●	Su Fathers Day	<b>T</b>	<b>F</b> 8pm Public Night	Su	1
2	<b>W</b>	S	S	T	Th	Su	<b>T</b>	<b>F</b> 8pm Public Night	M	<b>W</b>	S VicSouth	M	2
3	<b>Th</b>	Su	Su	W	<b>F</b> 8pm Public Night	M ●	<b>W</b> ●	<b>S</b> Working Bee & BBQ	T	<b>Th</b>	Su VicSouth	T	3
4	<b>F</b> 8pm Public Night	M	M	Th	S	T	<b>Th</b>	<b>Su</b> Working Bee & BBQ	W	<b>F</b> 8pm Public Night	M VicSouth	W	4
5	<b>S</b>	T ●	T	<b>F</b> 8pm Public Night	Su ●	W	<b>F</b> 8pm Public Night	M	Th	<b>S</b>	T Cup Day	Th	5
6	<b>Su</b> ●	W	W	<b>S</b>	M	Th	<b>S</b>	T	<b>F</b> 8pm Public Night	<b>Su</b> Daylight Savings Starts	W	<b>F</b> 8pm Public Night	6
7	<b>M</b>	Th	Th ●	<b>Su</b> Daylight Saving Ends	T	<b>F</b> 8pm Public Night	<b>Su</b>	W	S	M	Th	S	7
8	<b>T</b>	F	F	<b>M</b>	W ASV	S	<b>M</b>	Th	Su	T	<b>F</b> SCAG	Su	8
9	<b>W</b>	S	S	<b>T</b>	Th SPSP	Su	<b>T</b>	F VASTROC	M	W ASV	S	M	9
10	<b>Th</b>	Su	Su	<b>W</b> ASV	F SPSP	M Queen's Birthday	<b>W</b> ASV	<b>S</b> APWS VASTROC	T	Th	Su	T	10
11	<b>F</b> 8pm Public Night	M	M Labour Day	<b>Th</b>	S SPSP	T	<b>Th</b>	Su NSW VASTROC	W ASV	F	M Remembrance	W ASV ●	11
12	<b>S</b>	T	T	<b>F</b>	Su SPSP Mothers Day	W ASV	<b>F</b>	M NSW	Th	S	T ●	Th	12
13	<b>Su</b>	W ASV	W ASV	<b>S</b>	M	Th	<b>S</b>	T NSW	<b>F</b> SCAG	Su	W ASV	F	13
14	<b>M</b>	Th Valentines Day	Th	<b>Su</b>	T	F	<b>Su</b>	W ASV NSW	S ●	M ●	Th	<b>S</b> Members Xmas Party	14
15	<b>T</b>	<b>F</b> SCAG	F	<b>M</b>	W MPAS Meeting 8pm	S	M	Th NSW ●	Su	T	F	Su	15
16	<b>W</b> MPAS Meeting 8pm	S	S	<b>T</b>	Th	Su	T	<b>F</b> NSW 8pm Public Night	M	W MPAS Meeting 8pm	S	M	16
17	<b>Th</b>	Su	Su St Patricks day	<b>W</b> MPAS Meeting 8pm	<b>F</b> SCAG	M ●	<b>W</b> MPAS AGM 8pm	<b>S</b> NSW Astro Concert	T	Th	Su	T	17
18	<b>F</b> 8pm Public Night	M	M	<b>Th</b>	<b>S</b> 6pm Members	T	Th	Su NSW	W MPAS Meeting 8pm	F	M	W Scorpius Deadline	18
19	<b>S</b> 6pm Members	T	T	<b>F</b> Good Friday ●	Su ●	W MPAS Meeting 8pm	F	M	Th	<b>S</b> 6pm Members	T	Th	19
20	<b>Su</b>	W MPAS Meeting 8pm ●	W MPAS Meeting 8pm	<b>S</b> 6pm Members	M	Th	<b>S</b> 6pm 50th Society Dinner	T	F	Su	W MPAS Meeting 8pm	F	20
21	<b>M</b> ●	Th	Th ●	<b>Su</b> Easter	T	F	Su	W MPAS Meeting 8pm	<b>S</b> 6pm Members	M	Th	<b>S</b>	21
22	<b>T</b>	F	F	<b>M</b> Easter	W	<b>S</b> 6pm Members	M	Th	<b>Su</b>	T	F	<b>Su</b>	22
23	<b>W</b>	<b>S</b> 6pm Members	<b>S</b> TLD 4pm Members	T	Th	Su	T	F	<b>M</b>	W	<b>S</b> 6pm Members	<b>M</b>	23
24	<b>Th</b>	Su	Su	W	F	M	W	S	<b>T</b>	Th Scorpius Deadline	Su	<b>T</b>	24
25	<b>F</b>	M Scorpius Deadline	M	Th ANZAC Day	S	T	Th	Su	<b>W</b>	F AFL Holiday	M	<b>W</b> Xmas Day	25
26	<b>S</b> Australia Day	T	T	<b>F</b> Scorpius Deadline	Su	W	F	M	<b>Th</b>	S	T	<b>Th</b> Boxing Day ●	26
27	<b>Su</b>	W	W	S	M	Th Scorpius Deadline	S	<b>T</b> Scorpius Deadline	<b>F</b>	Su AFL Grand Final	W ●	<b>F</b>	27
28	<b>M</b> A/D Holiday	Th	Th	Su	T	F	Su	W	<b>S</b>	M ●	Th	<b>S</b>	28
29	T		<b>F</b>	M	W	<b>S</b>	M	Th	<b>Su</b> ●	T	F	<b>Su</b>	29
30	W		<b>S</b>	T	Th	<b>Su</b>	T	F ●	<b>M</b>	W	S	<b>M</b>	30
31	Th		<b>Su</b>		F		W	S		Th Halloween		<b>T</b> New Years Eve	31

**Green Boxes** - Public Nights Friday @ the Briars 8pm

**Yellow Boxes** - MPAS Meeting @ the Briars 8pm to 10pm

**Blue Boxes** - Members BBQ nights @ the Briars 6pm

**Light Brown Boxes** - ASV General Meeting @ the Herbarium Melbourne 8pm

**SCAG** - Combined Scout, Cubs & Guides @ the Briars 8pm to 10pm

**TLD** - Telescope Learning Day 23rd March @ the Briars 4pm

**50th Anniversary Dinner** - 20th July @ the Briars 6pm

Autumn Equinox - March 21

Winter Solstice - June 22

Spring Equinox - September 23

Summer Solstice - December 22

Full Moon ● New Moon ●

**Bold Underlined Days** - School Holidays

**Grey Boxes** - Weekends & Public Holidays

**SPSP** - South Pacific Star Party- Ilford NSW 9th - 12th May

**National Science Week** 10th to 18th August

**VASTROC** - Hosted by MPAS 9th, 10th & 11th August

**APWS Astrophotography Workshop** - 10th August @ the Briars 1pm

**MPAS Astro Concert** - 17th August @ the Briars

**ASV - VicSouth Star Party** - Nhill Victoria 1st to 4th November

MPAS Calendar 2019 - by Greg Walton

Version 2018-11-10



# THE BRIARS SKY

By Greg Walton

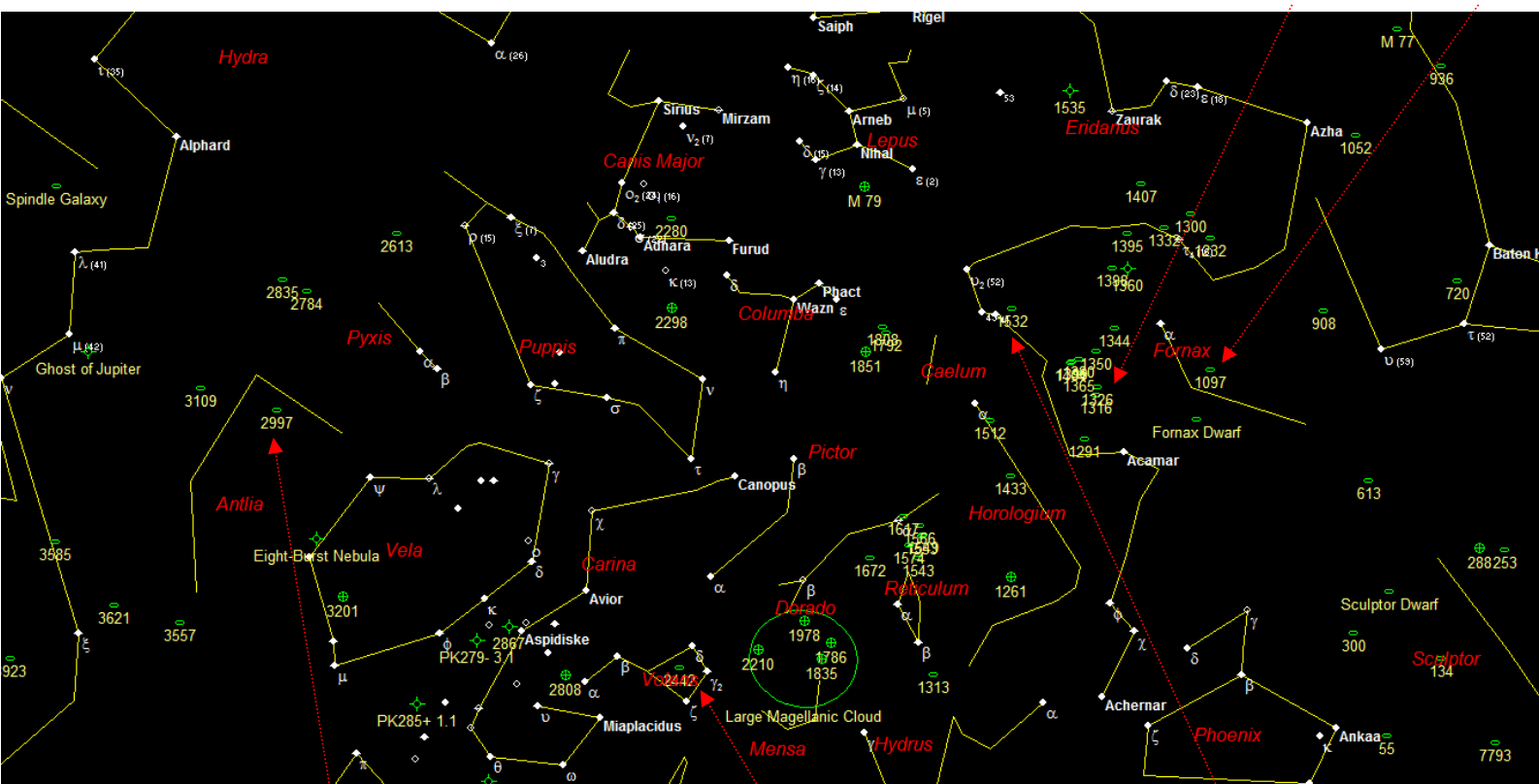
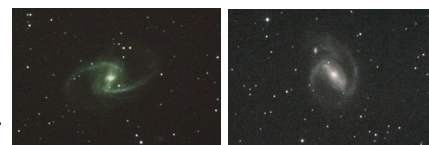


January / February 10pm at the Briars. Sky images generated with Skymap version 6

While facing south and looking up, this are the constellations you should see.

I have only marked galaxies, globular clusters and planetary nebulas to 10.5 magnitude.

Using the go-to telescopes in the observatory, see if you can find NGC1365 & NGC1097.



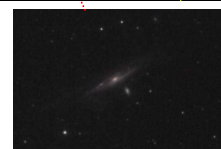
NGC 2997



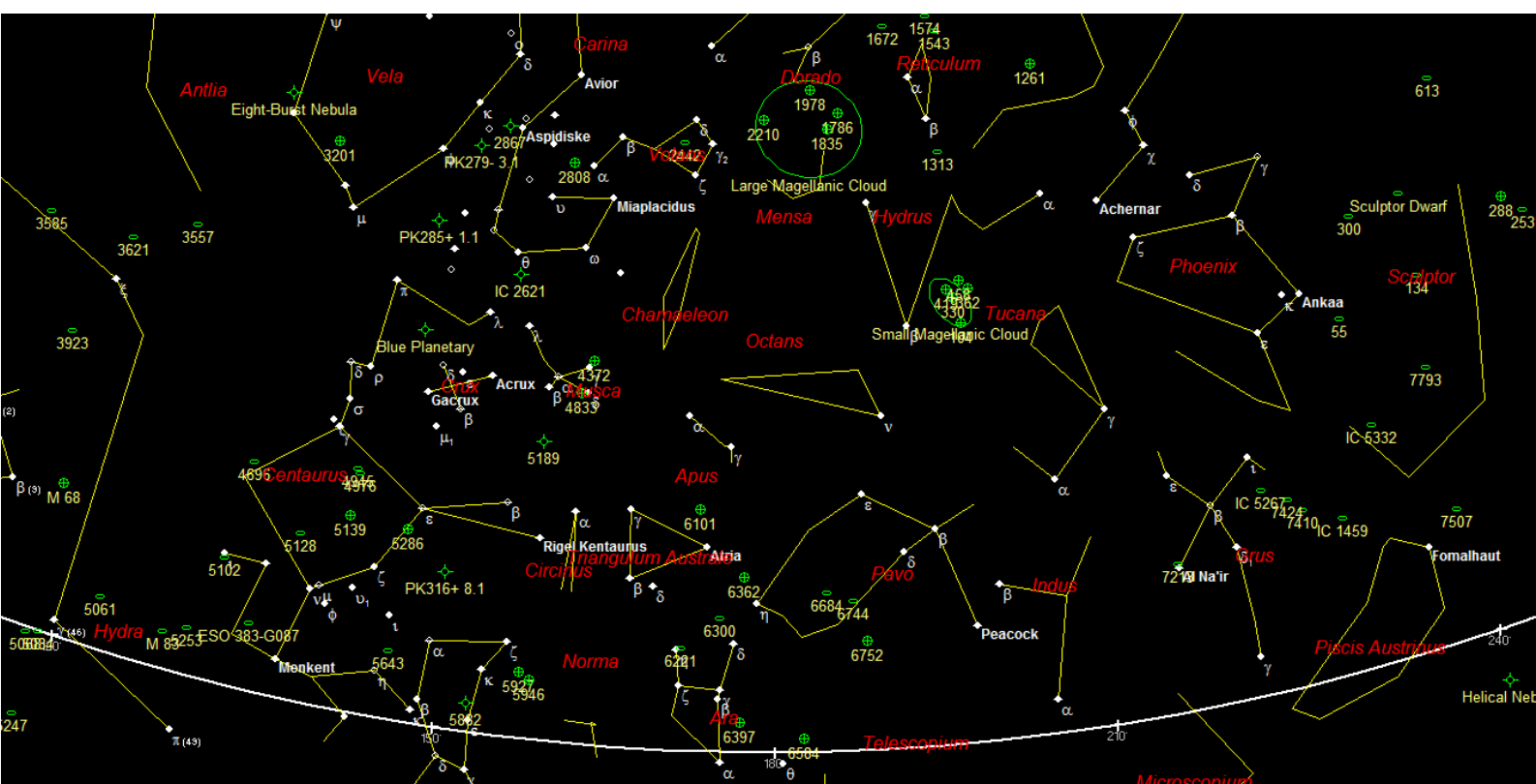
NGC 2442



NGC 1532



Sky map below is looking south with the Large Magellanic Clouds as high in the sky as they can get.





# ASTRO NEWS

By Nerida Langcake



## InSight lander sets down safely on Mars

There's a new robot on Mars' surface, the InSight spacecraft, designed to study the planet's interior. It set down safely on Monday 26<sup>th</sup> November, after nearly 7 months of flight from Earth and a 7-minute nail-biting plummet through Mars' thin atmosphere. The lander touched down near Mars' equator on the western side of a flat, smooth expanse of lava called Elysium Planitia. It set down less than 640 kilometres from Curiosity, the only other working robot on Mars.

This was NASA's eighth successful soft-landing on Mars. InSight took almost seven months to travel 458 million km from Earth. This craft is not a rover; it's designed to stay in one place and to drill into and study Mars' deep interior. The name InSight stands for Interior Exploration using Seismic Investigations, Geodesy and Heat Transport. NASA said, "InSight's two-year mission will be to study the deep interior of Mars to learn how all celestial bodies with rocky surfaces, including Earth and the moon, formed".

The InSight lander hit the Martian atmosphere at 19,800 km per hour, and the whole sequence to touching down on the surface took only 6 1/2 minutes. During that short span of time, InSight had to autonomously perform dozens of operations and do them flawlessly.



*Selfie taken by the InSight lander after touchdown*

Another landing on Monday was the MarCO mission, embodied in two briefcase-sized CubeSats that launched on the same rocket as InSight and made the trip to Mars with it. When they reached Mars, after successfully carrying out a number of communications and in-flight navigation experiments, the twin MarCOs were set in position to receive transmissions from InSight during its entry, descent and landing. The MarCOs successfully received the landing signal from InSight and relayed it to NASA's Jet Propulsion Laboratory. They are the first CubeSats sent into deep space.

NASA said InSight will begin doing science soon: "InSight will begin to collect science data within the first week after landing, though the teams will focus mainly on preparing to set InSight's instruments on the Martian ground. At least two days after touchdown, the engineering team will begin to deploy InSight's 5.9-foot-long (1.8-meter-long) robotic arm so that it can take images of the landscape. Within two or three months, the arm will deploy the mission's main science instruments, the Seismic Experiment for Interior Structure (SEIS) and Heat Flow and Physical Properties Package (HP3) instruments".

InSight is expected to operate on the surface for one Martian year, plus 40 Martian days, or sols, until at least November 24, 2020.

## InSight's instrumental trifecta

These three instruments will tell us more about the interior of Mars than any other mission before it

### Rotation and Interior Structure Experiment (RISE)

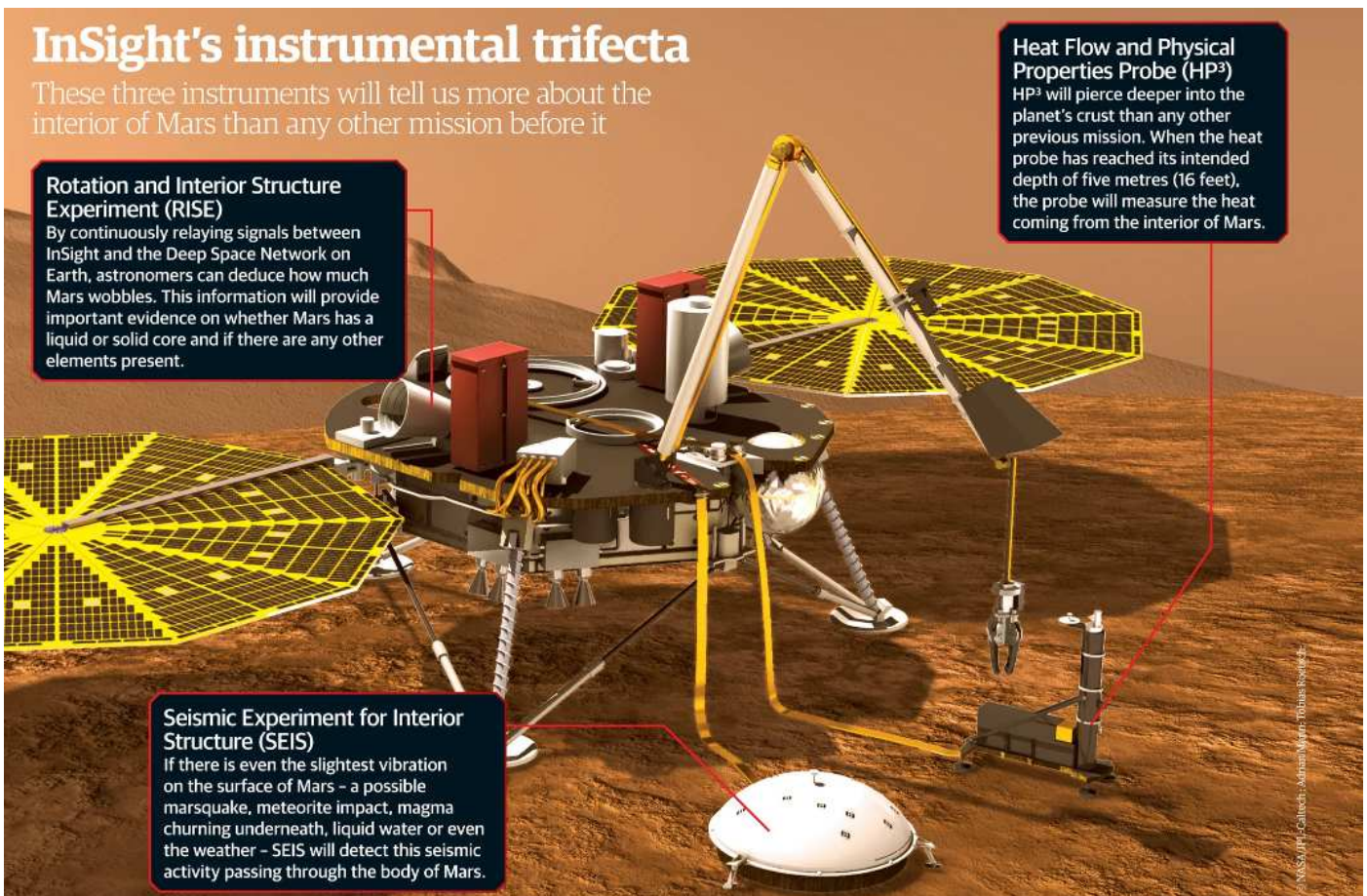
By continuously relaying signals between InSight and the Deep Space Network on Earth, astronomers can deduce how much Mars wobbles. This information will provide important evidence on whether Mars has a liquid or solid core and if there are any other elements present.

### Heat Flow and Physical Properties Probe (HP3)

HP3 will pierce deeper into the planet's crust than any other previous mission. When the heat probe has reached its intended depth of five metres (16 feet), the probe will measure the heat coming from the interior of Mars.

### Seismic Experiment for Interior Structure (SEIS)

If there is even the slightest vibration on the surface of Mars – a possible marsquake, meteorite impact, magma churning underneath, liquid water or even the weather – SEIS will detect this seismic activity passing through the body of Mars.





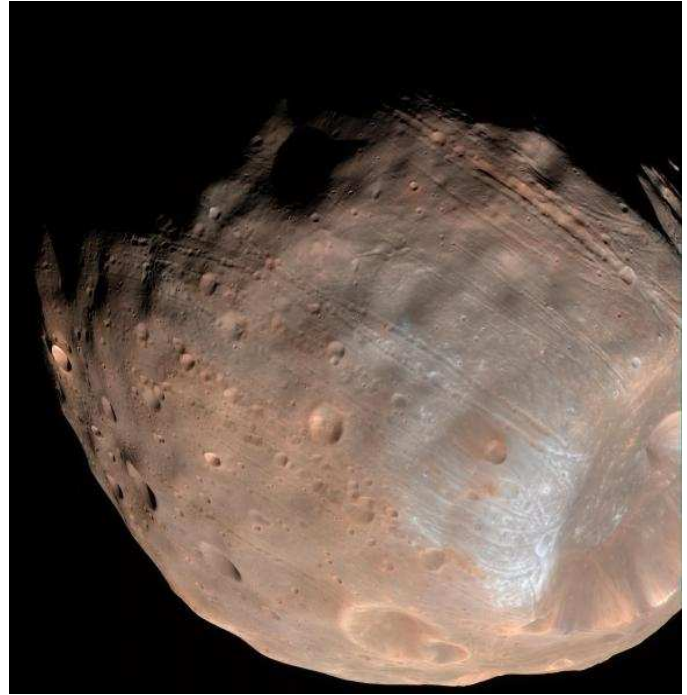
## How did Phobos get so groovy?

Mars' moon Phobos is an enigmatic little world, with unusual grooves cutting across its surface. Now scientists have new evidence to support the theory that they were created by rolling boulders.

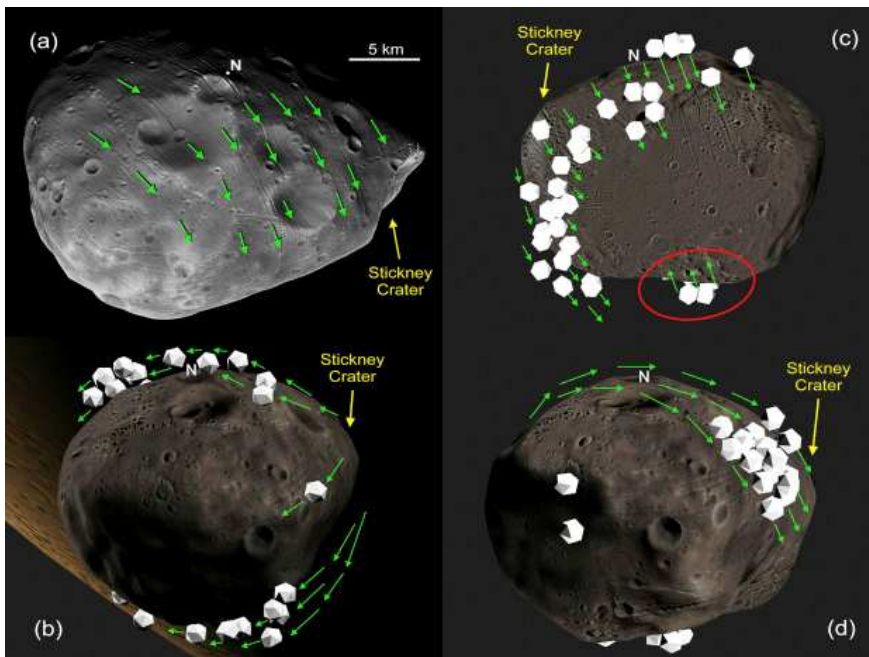
Phobos is a very groovy moon, literally. The surface of this moon of Mars is covered with odd linear grooves, and for a long time scientists have wondered how they formed. Now, a new study from researchers at Brown University might have solved this mystery. The researchers say that boulders rolling across Phobos' surface probably created the markings. The new peer-reviewed findings were published in *Planetary and Space Science* on November 16, 2018.

The study suggests that the rolling boulders were sprayed across the surface of Phobos during the impact that created the large Stickney crater on one end of the oblong Martian moon. The team used computer models to simulate the movement of debris from the crater. As Ken Ramsley, a planetary science researcher at Brown University who led the work, explained:

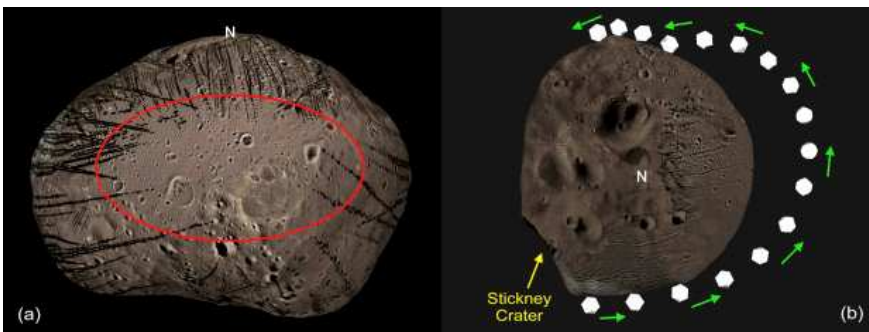
*"These grooves are a distinctive feature of Phobos, and how they formed has been debated by planetary scientists for 40 years. We think this study is another step toward zeroing in on an explanation."*



The tiny Martian moon Phobos, with its enigmatic grooves. Stickney crater is in the bottom right corner of the image.  
Image via NASA/JPL-Caltech/University of Arizona.



Computer models showing the possible paths of debris from the large Stickney crater on Phobos.  
Image via Ramsley et al./Brown University.



Computer simulation showing how boulders "flew over" one area of Phobos, leaving it devoid of grooves. Image via Ramsley et al./Brown University.

The grooves are a striking feature on this tiny moon of Mars and were first seen by the Mariner and Viking missions in the 1970s. Another theory had been that the grooves were the result of structural failure in the moon, as Mars' gravity is very slowly tearing the moon apart.

The idea of rolling boulders isn't new, either. In the late 1970s, planetary scientists Lionel Wilson and Jim Head had also proposed the idea that bouncing, sliding and rolling boulders from Stickney might have created the grooves. Head is a co-author on the new paper.

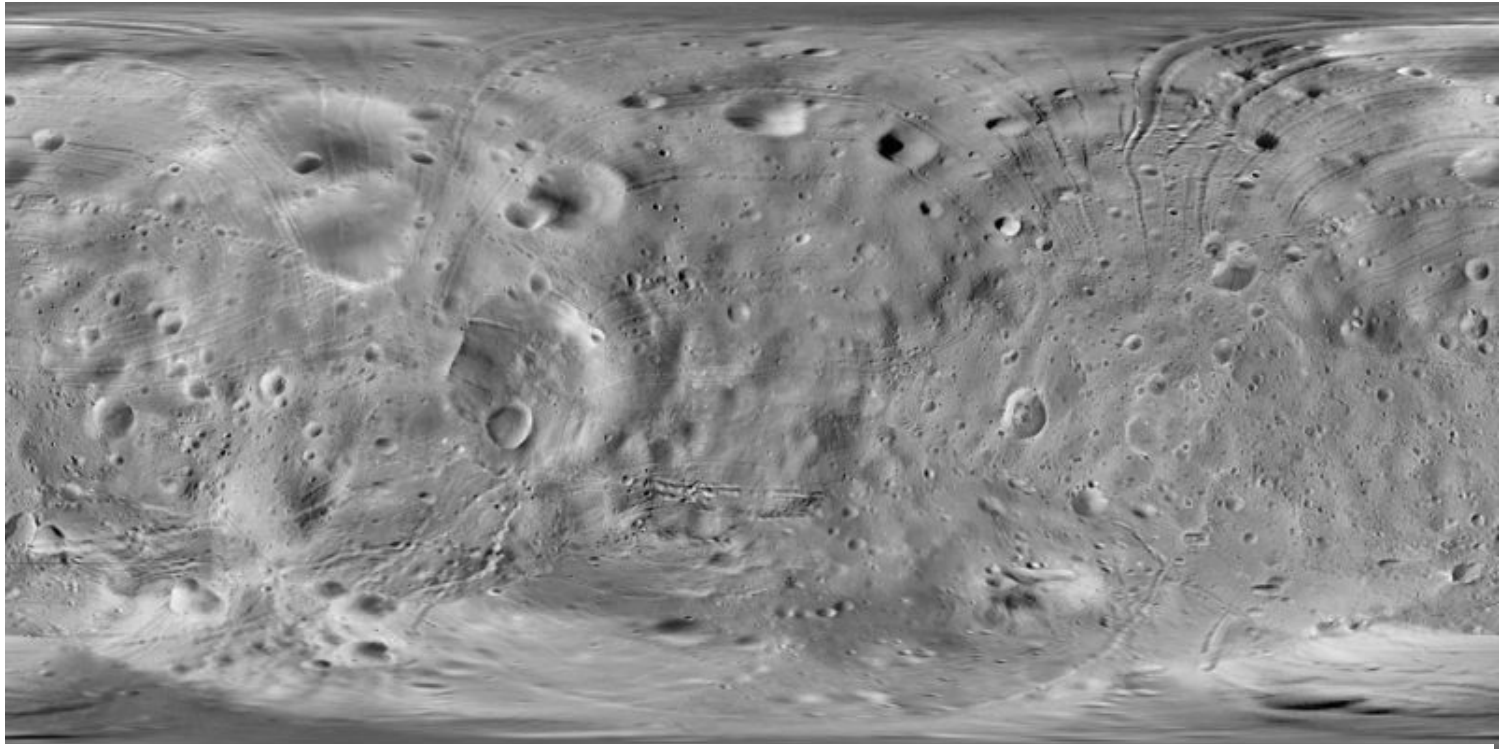
It is also fortunate that the impact that created Stickney crater didn't destroy Phobos. Stickney crater is about 5.6 miles (9 km) across and Phobos itself is only 16.7 miles (27 km) at its widest point. This little moon came perilously close to being smashed into smithereens in the event that created Stickney crater.

The new theory sounds pretty straightforward although there are still some nagging questions. Most of the grooves radiate away from Stickney crater, but some do not. Some grooves also lie on top of other grooves, showing that they were created at different times. How does that reconcile with all the grooves being created by a single impact? Other grooves even run right through Stickney crater itself. The crater must have already been there when those grooves formed, otherwise the impact that created the crater would have wiped them out in that area.

Despite those problems however, Ramsley found that the computer models re-created the groove patterns quite well, even though he didn't know just what to expect:

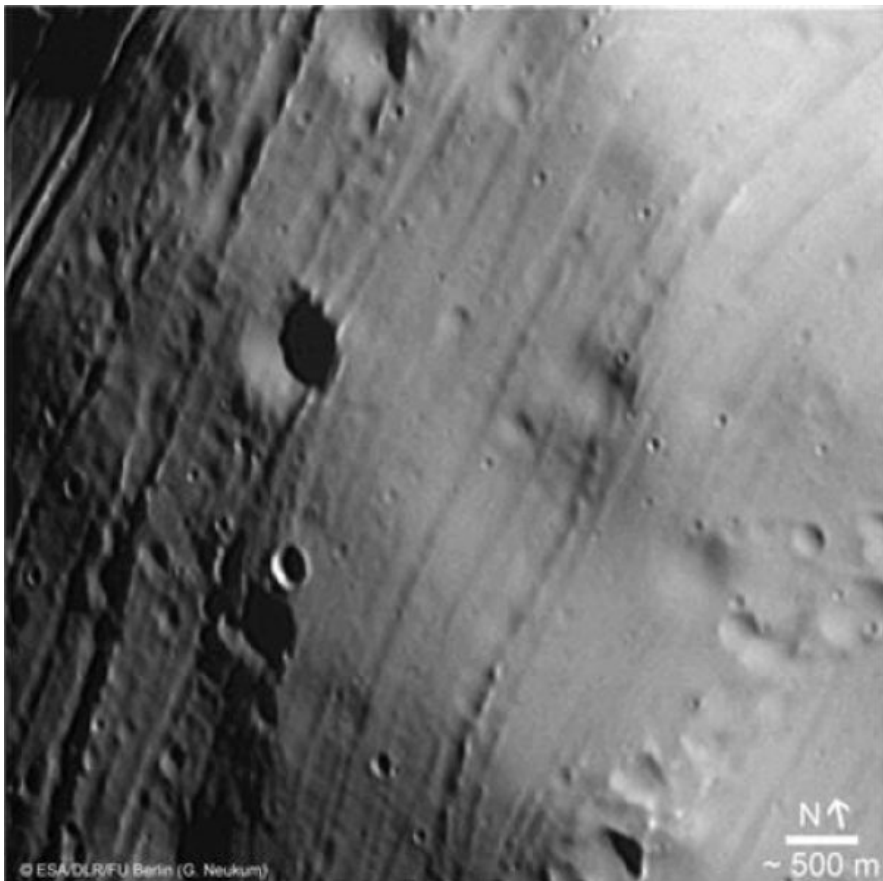
*"The model is really just an experiment we run on a laptop. We put all the basic ingredients in, then we press the button and we see what happens".*





*Global map of Phobos, taken by the Viking orbiter, showing the locations of all the grooves relative to other features. Image via Planetary Data System/Phil Stooke.*

The grooves tend to be parallel to each other, and according to the computer models, the boulders would have been ejected from the crater-forming impact in parallel paths as well. The boulders would also have kept rolling for much longer than on larger moons or planets, due to Phobos' very weak gravity. If some boulders rolled all the way around the moon, that could explain why some grooves are not radially aligned to the crater. It could also explain the grooves formed on top of other grooves, since grooves that were created right after the impact were then crossed minutes to hours later by boulders completing their journeys around the moon, hence the time difference in their formation. Also, if some boulders did roll all the way around the moon, they could have rolled right across Stickney crater.



*A closer view of some of the grooves from Mars Express.  
Image via ESA/DLR/FU Berlin (G. Neukum).*

But what about the “bare spot” where there are no grooves? The computer simulations explain that also – the spot is a low-elevation area surrounded by a taller “lip.” The boulders would have hit that lip first, catapulting them over the region, and landing again on the other side. As Ramsley described it: *“It’s like a ski jump. The boulders keep going but suddenly there’s no ground under them. They end up doing this suborbital flight over this zone”.*

So it seems like all of the odd features can be explained by these computer models. As Ramsley noted:

*“We think this makes a pretty strong case that it was this rolling boulder model that accounts for most if not all the grooves on Phobos”.*

Bottom line: Mars’ moon Phobos is a very intriguing little world, with features that have perplexed scientists for decades. Now, thanks to advanced computer modeling from scientists at Brown University, we may finally know how this little world came to be so groovy.

*By Nerida Langcake*

*Source: Origin of Phobos grooves: Testing the Stickney crater ejecta model  
Via Brown University*



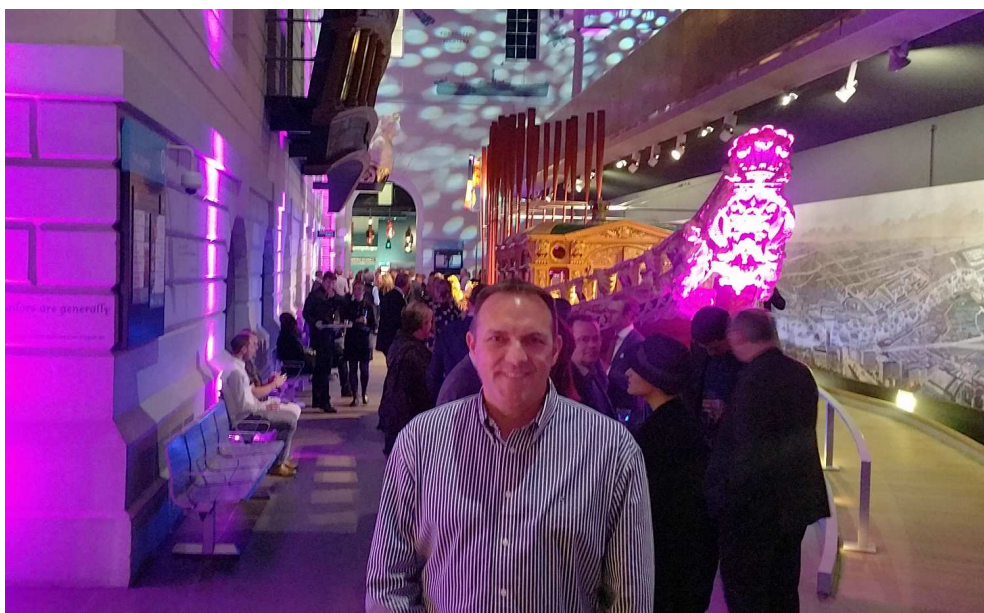
## Insight Astronomy Photographer of the Year 2018

*by Steven Mohr*

On the evening of the 23<sup>rd</sup> October 2018, held at the Maritime Museum of Greenwich, London, was the Insight Investment Astronomy Photographer of the Year award ceremony.



Two MPAS members, Logan Nicholson and Steven Mohr, were short listed candidates of two different award categories: Logan for the Young Astrophotographer award category and Steven Mohr for the Galaxy category. The event location was nothing short of extraordinary, with the hosts providing fantastic pomp and flair, making the event guests feel very welcome. The ceremony was held in the central exhibition centre, where the Great map is found. Prior the event commencement, guests were permitted access to lower central walkways, with many amazing antiquities being held on display.



It was not long before the announcement was made for guests and contestants to be seated, and the people then slowly moved to the upper raised mezzanine floor. Here the area was transformed with a large stage and attractive lighting, with some 30 or so tables set for the contestants, Insight Investment representatives, members of the judging panel, Maritime Museum personnel, and other invited guests.





Once all were seated, the ceremony was off and running. Having numerous categories to present in the time allotted, the Young Astronomy Photographer of the Year category was first up. Here Logan was 1 of 3 shortlisted, and the presenter built up the crowd. We held our breath with the Highly Commended, third place category being announced first. It wasn't Logan! Then the Runner Up was announced... In second place, selected from a raft of images submitted worldwide, Logan Nicholson had successfully achieved a fantastic result with his amazing image of the Carina Nebula. The crowd gave a hearty applause to his success!

Immediately following this announcement was the Galaxy section award. I can give my personal account and after such a long way to travel for the award ceremony, we [my wife Simone and daughter Kayla] sat anxiously as the announcer continued on. The Highly Commended category was announced, and it wasn't me. Hell... Suddenly I began to panic with the thought that I wasn't third placed, and was suddenly somewhat overwhelmed by what happened next. The runner up was announced and again it wasn't me either. Hell! I was really thinking then what did that mean? Almost confused by the final announcement I marched up to the stage to get the winning certificate. Continuing to be stunned, I gave the presenter no chance to discuss the award, and I flew off the stage and back to the safety of my seat!



The overall winning image for the contest was a Mars like impression by Brad Goldpaint, named: Transport the Soul.

The rest of the evening marched on and before long the ceremony was complete. Overall, it was very professionally hosted and enjoyable presentation, and recommend to anyone that should they be shortlisted, that they consider to make an attempt to attend for this wonderful experience.





At the end of the presentation, the audience was then marched back down stairs for the first viewing of the Insight Astronomy Photographer of the Year 2018 Gallery.



A lower wing of the Museum has been dedicated to the exhibition. Low lighting and professional image displays, with the authors describing text, and words from one of the judges can be read per image. The consistent quality of each image was just impressive. The exhibition was also inclusive of a number of previous years winning entries, including other Australian amateur astronomers Michael Sidonio and Martin Pugh.

The following day we were invited back for a morning breakfast and early viewing of the exhibition. We took the advantage of being first into the Museum and raced up to the Nelson display. The floor is impeccably laid out, with incredible historical pieces throughout, including the naval uniform worn by Nelson on the fateful day he died in battle, with the bullet hole clearly visible in his left shoulder.

The Maritime museum itself was a most interesting excursion, with us spending most of our time in the Nelson section reading and examining each display in detail. Part of our early pass was the free entry to the Greenwich Observatory. Here we saw the Meridian line, and the time ball, when upon 1pm, the ball fell to indicate the time.



The weather was wonderful for our entire time in London, and from this experience, we would recommend to anyone the worth in visiting this amazing city.





**Did you know that the results of a space mission that worked perfectly almost killed space exploration overnight? Did you also know that there is only one full photograph of Neil Armstrong on the Moon (the rest are either reflections in a helmet visor, or television or 16 mm movie camera films)? The story of space exploration is one of the most intriguing, and civilization changing adventures of humanity. Even now, it's hard to believe that only within a human lifetime that humans and robotic spacecraft have visited the Moon and every planet of the Solar System.**

My book: "Imagining the Spheres", tells the story of space exploration, starting from the ground-breaking work of early astronomers such as Galileo, whose work changed the planets from things of worship to other worlds that share the Solar System with Earth. Even during these early times of science, the Moon and planets were more or less assumed to be Earth-like. Oceans lapped the grey shorelines of the Moon, while sea monsters inhabited the planet wide ocean of Saturn. The idea of planets made of poisonous gas or moons made of fire were as remote as the planets themselves. As astronomy continued to evolve from a superstitious realm to a venture of observation and recording, our neighbours became distinctly less Earth-like and more alien than our imaginations could have possibly fathomed. The space age sped this process up immensely. The advent of the space age sped this process up immensely. As our space probes visited planet after planet, millennia of philosophy and assumed understanding were transformed, literally overnight.

Some of the people who lived through this radical transformation are still alive. Space artist David A. Hardy, who cut his teeth painting canals on Mars and jungles on Venus, remembers the times: "... around 1950, it was generally accepted that because Mars has white polar caps, and dark areas (often thought to be greenish, probably because of contrast with the red surface) appear to spread in a 'wave of darkening' in the Martian spring, there must be vegetation. The most extreme version of this, proposed by Percival Lowell, was that there are dark lines which appear to connect the various areas. These had been observed by the Italian astronomer Schiaparelli, who called them 'canali', meaning 'channels', but Lowell interpreted this as 'canals'. This inevitably led to a belief in intelligent Martians, attempting to save their drying and dying planet by guiding water from the melting poles."

We now know that the observed colour changes are due to nothing more than dust being moved around by the very strong winds, causing planet-wide dust storms which reveal and obscure lighter desert and darker rocks. Even so, evidence of past water flows as revealed by generations of robotic spacecraft continue to inspire scientists and artists studying Mars today.

As we approach the 50th anniversary of Apollo 11, there is a dichotomy in space exploration. Despite plans of return missions and accessible spaceflight promised for decades, no human being has risen higher than 600 nautical miles above Earth since 1972. Since then, many of our great space pioneers have fallen. Less than half of the 12 men who walked on another world remain among the living. Soon, no one will be able to tell us what it was like to ride the largest rocket ever built, or cover the whole Earth, and everyone who ever lived, with their thumb.

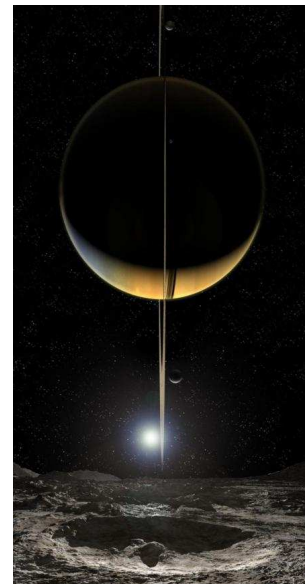
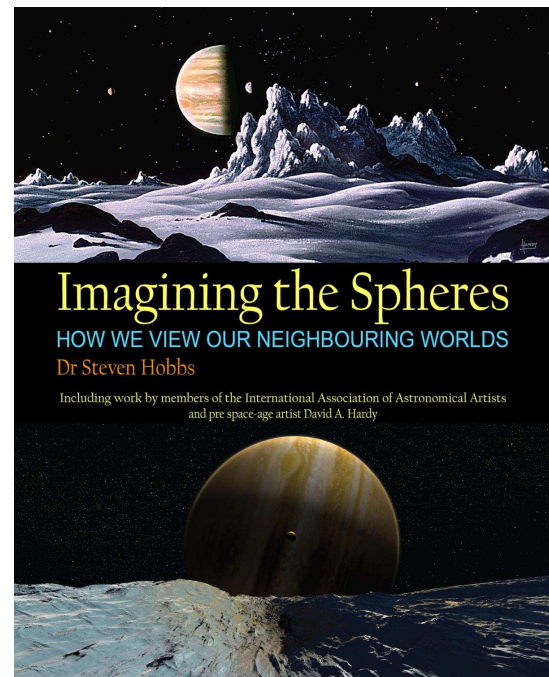
On the other hand, through our robotic proxies of iron and glass, we have discovered amazing diversity in our Solar System neighbours. Volcanos on a moon in deep space and glaciers made of nitrogen on Pluto were among the least expected discoveries of space exploration. Additionally, People born after 1997 have never known a Mars that was not continuously observed. In fact, there is now more planetary data and imagery available than there are scientists to investigate it. This has opened up the field for citizen scientists and enthusiasts to reprocess old data and sometimes make new discoveries. "Imagining the Spheres" features rare images, including the first colour photographs taken of Mars from a spacecraft.

Even with the beautiful images returned from space robots, amateur astronomers continue to play a vital role in monitoring the Solar System. Australian astronomers such as Anthony Wesley and Trent and Julie McDougall, use sophisticated digital sensors to capture images of the Moon and planets not possible a generation ago. The persistence of telescopic observations has allowed for transient discoveries, such as cemetery impacts on Jupiter, that brief spacecraft flybys are unable to do.

Thanks to amateur astronomers, space artists, and professionals working in the world's space agencies, "Imagining the Spheres" allows people living in the first decades of the 21st century to see the Moon and planets as real places. This book is a journey in words and pictures of how the Space Age changed our understanding of our neighbouring worlds. It is a story of human imagination, endurance, and ingenuity, and how the quest for the answers of tomorrow pushed people to achieve the once impossible and drive human dreams ever forward.

*By Dr Steven Hobbs*

Imagining the Spheres is available as hardcover and ebook at: [www.amazon.com.au](http://www.amazon.com.au). Search for "Imagining the Spheres".





## A Visit to Almaden

In October 2018, I travelled 170 kms west of Cairns in search of dark skies. The road took me through Kuranda, Mareeba and Dimbulah along the Wheelbarrow Way, so called because early miners piled their belongings onto a wheelbarrow and walked miles to seek their fortune. After mango, lime and sugarcane plantations, the country opened out into dry savannah with rocky outcrops and termite mounds. Brahman cattle and horses wandered unfenced through sparse trees. Crows and wedge tail eagles picked at the road kill. After passing a couple of roadhouses I eventually came upon Almaden, population 70, locally known as "Cow Town" due to the number of Brahman cattle wandering the main road. The main road is about 100 metres long and contains a couple of weatherboard houses, the old railway station and the hotel. There are no shops, the hotel also serving as a post office with a petrol pump. The pub, a weatherboard building with a corrugated iron roof and wide verandah, is the only place that serves food and has basic accommodation comprising 10 or so tiny cabins of the sort you see roadside workers use. There are shared toilet and bathrooms and the room contains a bed, a small bar fridge, a small table, a wardrobe and an air conditioner. After checking in I went exploring along dusty unmade roads as the bitumen ends at Almaden and the gravel road continues another 30 kms to the Chillagoe Caves. I saw a couple of road trains, pulling several multi tiered trailers for

livestock before turning up a side road and coming upon a Caterpillar front-end loader. I got out my iPhone and checked out my PhotoPills app and saw that the Milky Way would be setting behind it in the early evening. Whoopee! I thought, this would make a great photo opportunity with a bit of light painting. I returned to the pub and asked the manager if the tractor was on private property as some farmers can be a bit touchy about trespassers. She said it was and I mentioned the tractor and what a good photo it would make. I was resigned to having to give it a miss or risk

being run off by an irate, gun toting farmer. I had another spot in mind, off the main road, so I went to my room for a rest from the hot sun and red dust. When I went back to the bar, the publican told me that the farmer had been in. She had obviously mentioned that I was interested in photographing his tractor and he had said "no worries". So after dinner I headed out down the road and set up my camera. Just as it was getting dark, Lance, the farmer, drove up in his battered Land Rover Ute with a can of beer in his hand. He was a very friendly young fellow very down to earth and we had a great chat with me pointing out the planets and explaining how I was going to set up the shot. Lance drove off to see his mates and I finished up with three decent shots out of many taken. The night sky was incredibly clear with Venus, Jupiter, Saturn and Mars visible. As the Milky Way was setting, the LMC and SMC were just rising. After about three hours, I packed up and went to the pub. Even though I was dog tired I could not tear myself away from staring with wonder at the vision of our own galaxy- the Milky Way.

*By Tony Nightingale*





## Comet 46P

MPAS members have been out looking for comet 46P.

In early December comet 46P was almost directly over head in the evening sky, but by 16th of December it was near M45.

On the 5th and 10th of December the sky was clear so a few MPAS headed to the Briars.

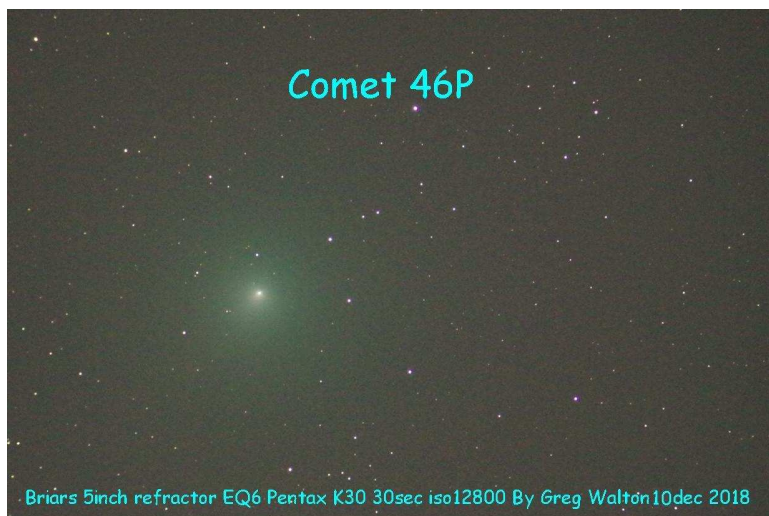
From the Briars Nerida, Logan and myself could see comet 46P naked eye, but only just. If we looked straight at the comet it disappeared. If we looked at a near by star which was a few degrees above, the comet sprung back in to view. We call this technique averted vision, as the centre of the retina has less sensitivity because the nerve to the brain attach to the back of the eye at this point.

Right - Alex Cherney imaged the comet on many occasions and made a time lapse.

Below - Some of my images taken at the Briars with the clubs 5 inch refractor in the observatory.  
Greg Walton

Link to time lapse

<https://youtu.be/Y-kjlxF5G9w>





## MPAS Gallery by Steve Mohr



**Above - NGC300 | Spiral Galaxy** - Wiki: NGC 300 is a spiral galaxy in the constellation Sculptor, some 7 million light years away. It is one of the closest galaxies to the Local Group, and probably lies between the latter and the Sculptor Group. It is the brightest of the five main spirals in the direction of the Sculptor Group. It is inclined at an angle of  $42^\circ$  when viewed from Earth and shares many characteristics of the Triangulum Galaxy. If you like small, background galaxies, inside and surrounding NGC300, are so many tiny galaxies. The entire field is littered with bright and faint distant galaxies. If the smudge is defused, its probably a tiny far far away galaxy!

Instrument: Planewave CDK 12.5 | Focal Ratio: F8 Camera: STXL-11000 + AOX | Mount: AP900GTO]

Viewing Location: Central Victoria, Australia.Observatory: ScopeDome 3m, Date: July to September 2018 By Steve Mohr

**Right - NGC7793** is a spiral galaxy about 12.7 million light-years away in the constellation Sculptor. Unlike some other spirals, NGC7793 doesn't have a very pronounced spiral structure, and its shape is further muddled by the mottled pattern of dark dust that stretches across the frame. The occasional burst of bright pink can be seen in the galaxy, highlighting stellar nurseries containing newly-forming baby stars. Although it may look serene and beautiful from our perspective, this galaxy is actually a very dramatic and violent place. Astronomers have discovered a powerful microquasar within NGC7793 — a system containing a black hole actively feeding on material from a companion star. While many full-sized quasars are known at the cores of other galaxies, it is unusual to find a quasar in a galaxy's disc rather than at its centre. Acknowledgement: D. Calzetti

Looking close into the background, many distant galaxies of many shapes and types can be found – some with really crazy shapes and attributes.

By Steve Mohr





## MPAS Gallery



**Above - SL- 17 Fenrir Nebula** - This cleverly found section of sky, located in the constellation of Scorpius [coordinates at the head section: 16:53:02.49000 -43:35:01.6400], that looks like a very shadowy, monstrous wolf like creature, bounding through space! It has two nicknames that I can find, either simply as the Wolf Nebula or perhaps better described as the Fenrir Nebula. The Fenrir name comes from Norse mythology, with the Wiki describing the Fenrir as “the father of the wolves Sköll and Hati Hróðvitnisson, is a son of Loki, and is foretold to kill the god Odin during the events of Ragnarök, but will in turn be killed by Odin's son Víðarr”. Nice story.

After seeing a number of wide field images of the region, I wondered the result with my narrower field instrument? In the end, my system perhaps did not reveal all the nebosity a wider field, faster instrument may see, but it did add the benefit of increased contrast to the image. The colour base is solely from my Red, Green, Blue filters, with the resolution coming from a blend of the Luminance and Hydrogen-Alpha filters. The main subject is mostly made of a massive, heavy dense dusty region in space, the shape of the Fenrir. The reddish sections are emission nebula, populated by many stars of differing types and ages.

Instrument: Planewave CDK 12.5 | Focal Ratio: F8 Camera: STXL-11000 + AOX | Mount: AP900GTO

Viewing Location: Central Victoria, Australia. Observatory: ScopeDome 3m Date: August to September 2018 *By Steve Mohr*

**Right - NGC1291/ NGC1269 | Ring Galaxy** - This is quite a faint object, with unconnected, loosely defined spiral arms, and a curious looking inner bar [that's the centre part of the galaxy]. This appearance of the galaxy earns its classification as a Ring Galaxy, which is located some 33 million light-years away in the constellation of Eridanus. In the title above there are two NGC [New General Catalogue] numbers for this item: NGC1291 and NGC1269. It was first discovered in 1826 by James Dunlop and entered as NGC1291, but later in 1836 John Herschel thought he had discovered the object and entered it as NGC1269, not realizing this duplication. Well, I think well done to both of these men for finding NGC1291, as it must be very faint to see optically, even through a large telescope!

This image has been heavily processed to reveal the object from the collected data. The brightness of NGC1291 is not far from the background brightness, which has resulted in somewhat of a noisy appearance. But this was necessary to reveal the activity and dust in the outer arms, and that of the dusty chains in the central bar region. Interestingly, and although some commentary I found mentioned that this galaxy is void of activity, in certain sections of its outer arms, if you peer through the noise of the data, it can be seen that some new star formation exists with faint pinkish tones being visible, with faint bands of young blue stars being scattered in various sections of these loosely defined arms. Date: October 2018

*By Steve Mohr*





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## SOCIETY MEETINGS

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

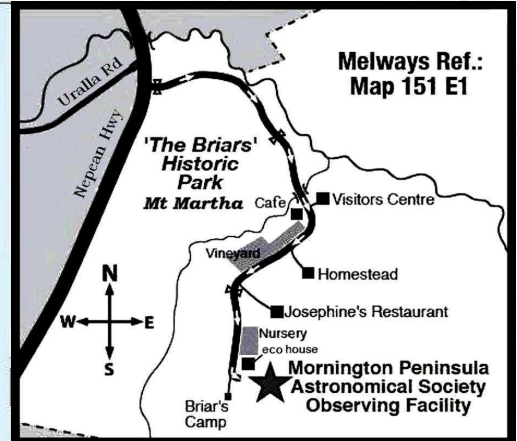
**Society meetings:** Don Leggett Astronomy Centre  
 8pm on the third Wednesday of the month  
 (except December)  
 (See map at right & Below)



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

**Phone:** 0419 253 252

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



## 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

## 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, to go: [www.groups.yahoo.com/e-scorpius](http://www.groups.yahoo.com/e-scorpius) and sign up to Yahoo groups - you are required to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo groups, email [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au) say that you want to join E-Scorpius & you will be added to the E-Scorpius list.

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

## 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 9776 2074 or 0415172503 if they need help getting to The Briars site. Upon arrival at the site, remember to sign the attendance book in the observatory building.

**For additional details:**

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

**Phone:** 0419 253 252

**Mail:** 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 [gwpas@gmail.com](mailto:gwpas@gmail.com)

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## SCORPIUS The journal of the Mornington Peninsula Astronomical Society

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