



SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

Volume XXV, No 2 (March / April)

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 services of its members for educational presentations and observing nights for schools and community groups. Reg No: A268 ABN: 34569548751 ISSN: 1445-7032



Alex Cherney
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Cover images - Alex Cherney captured this aurora with the space station crossing the horizon from Moe, Victoria on News Years Day 2016

SCORPIUS The journal of the Mornington Peninsula Astronomical Society

Newsletter Disclaimer

The Scorpius Newsletter is published online, once every two months for its membership, by the Mornington Peninsula Astronomical Society, for Educational Purposes Only. As a newsletter, this publication presents news spanning a spectrum of activities, reports, and publications in order to keep society members abreast of a variety of events and views pertaining to astronomy. While prudent, reasonable effort has been utilized to verify factual statements made by authors, inclusion in this newsletter does not constitute or imply official MPAS endorsement. All materials (except previously published material, where credited) are subject to copyright protection © 2015, Mornington Peninsula Astronomical Society

Presidents Report – Jan/Feb 2016, *By Dave Rolfe*

I hope everyone had a good Christmas and a good start to the year. The society has been (and will be) very busy during the first half of the year with lots of public nights, the telescope learning day and the construction project of the new observatory.

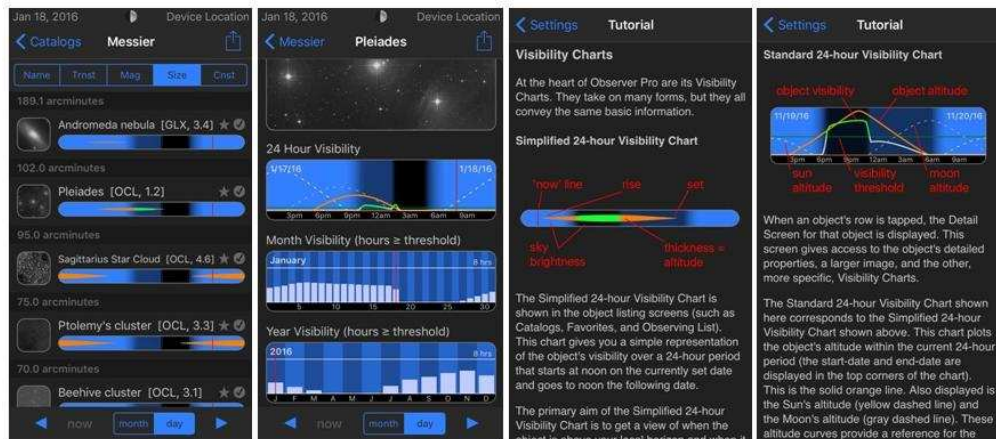
This year already we have started investing heavily in the new roll-off roof observatory that will house two new research grade equatorial systems. The steel has been delivered and construction well under way. We hope to complete all building works by mid-year for the society members use. I am sure Greg will have more photos.

We have also started the equipment build also with a solid base by purchasing two new mounts from the Bintel clearout sale; an EQ8 and EQ6, both of which can house large payloads of telescope equipment.

As a further note to this, Anthony formally of Bintel Melbourne has now setup his own shop for Binocular and telescope servicing. He will be operating from his home initially and provides a wealth of experience. He can be contacted via his website at battes.com.au



Observer Pro Software for IOS - Joshua Bury has finally released an update to this little Gem of an app. When I first started out I found this app to be the most useful tool for night sky planning. It has a large database of night sky objects and graphically displays the objects workability for the current location and time. The app is available from the Apple App store and is 30% reduced for the first month of the new version. See Right



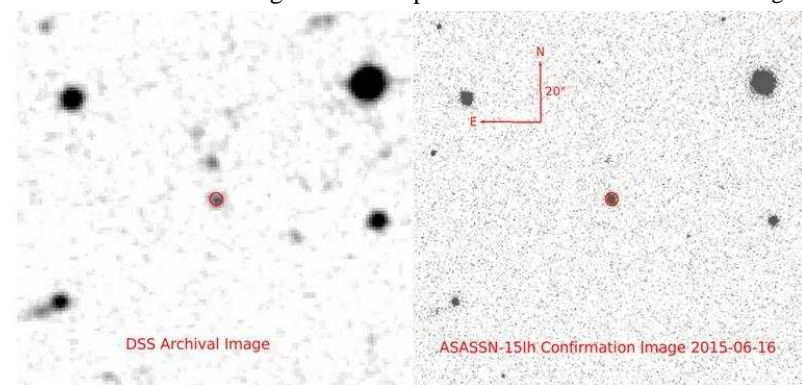
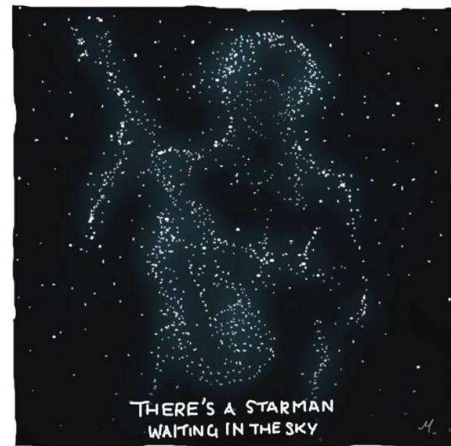
Memberships - A thankyou to those who have renewed your membership already, as you may have noted in the last publication, memberships will be for the calendar year in the future.

David Bowie - There is a sad footnote to the start of the year with the passing of the Star-man himself, David Bowie. He was someone who was obviously obsessed with the space program with his astronomical themed songs and aliases.

South Pacific Star Party - The 24th Annual South Pacific Star Party held by the Astronomical Society of NSW is on again this year from the 5-8 of May. The site is about a hour North of Bathurst. MPAS usually make a convoy up and we do it again, Leaving on the 4th and returning on the 9th. Anyone interested please let me know. For more information visit there website by going to www.asnsw.com

Joint Astronomy Society Project - Chris Rudge from the ASV is requesting a meeting with representatives of all Victorian societies to form a working group to help combat light pollution. We would like 1 or 2 people from MPAS to join this group so let me know if you are interested. The plan was to kick it of at the next NACCA.

Noteworthy in the Sky - SN 2015L was detected by the All Sky Automated Survey system that comprises 8 telescopes that can image the entire sky every 2 nights. The first hint of it was from the Chile twin 14cm scopes in June but was confirmed and published just last week. It is the most luminous supernova ever detected; when at its brightest it was almost 50 times more luminous than the whole Milky Way, with an energy hundreds of 572 billion times greater than the Sun. The peak absolute magnitude was -23.5 , putting out 2×10^{40} watts of Energy. It can be still seen today in the constellation of Indus (low SW at Dusk). Due to the distance of the supernova, it actually went bang about 2.8 billion years ago, which is about the same time the first bacteria was forming on the new planet called Earth. See below & right



SOCIETY NEWS

By Greg Walton

Photo below -
by John Cleverdon

January public night on the 1st - 15 members in attendance with no public as the sky was 100% cloud cover. *Greg Walton*

January public night on the 8th - Approximately 90 in attendance including 20 members and 70 non-members. Peter Lowe (past president) gave the talk in the big shed. Unfortunately the sky was cloudy with not even one star to be seen. Everyone appeared to have a good time looking at all the telescopes set up on the field, in readiness, should the sky clear. Photo at right public in the shed. See time lapse @ - <https://vimeo.com/151584182> *Greg Walton*

January public night on the 15th - Approximately 93 in attendance - 18 members and 75 members of the public. Peter Lowe (Past president) gave the talk in the big shed. Everyone went out side to watch the space station past over head, from west to east. The Moon was at almost first quarter, but not bright enough to stop the public from seeing a good number of bright deep sky objects. Being such a pleasant night many stayed on till midnight. See time lapse @ - <https://vimeo.com/152123068> *Greg Walton*

MS - 19th at Camp Munung - The viewing for Muscular Dystrophy Australia proceeded at Camp Manyung as planned on Wednesday evening. Telescope viewing commenced the evening ahead of encroaching cloud cover and the cool change arrival. Resultingly, only the Moon was visible in the early twilight conditions, but the "30 odd" campers, mostly in wheelchairs, plus about 38 carers, were impressed by what they saw. We all then returned to the hall to hear Peter Lowe supported by Simon Hamm give the solar system talk. Outside in the mild conditions with the telescopes were Colin Armour, Fiona Murray, Peter and Christopher Skilton and Greg Walton. The President of MDA was there and turns out he was keenly into astrophotography in his earlier years and has never lost the passion for the night sky. He was most knowledgeable in the lingo often heard in amateur astronomy banterings in the field. *Regards, Peter Skilton* - see photo at right.

January public night on the 22nd - Approximately 24 in attendance of which 12 were members. Peter Lowe (past president) gave the talk in the big shed. Clouds covered the sky till 9:15 pm, when the almost full Moon broke through the clouds, so everybody got to see the Moon & some of the bright deep sky objects. At about 11:30 the clouds moved in from the south & then it was time to go home. Everyone seemed to have a good time.

January Society Meeting - 28 members were in attendance. Dave Rolfe (President) chaired the meeting. Our guest speaker, Igor Andreoni from Swinbourne University talked on the violence in the sky. We learnt about very short term events (seconds) in the sky & how they are recorded by 5 different telescopes simultaneously (radio & optical telescope with the SWIFT satellite). This is very new science being done, which needs a lot of time analysing data on super computers. Greg Walton then did "sky for the month", showed time lapse & images from the 2015 VicSouth Star Party. Members chatted over coffee. *Greg Walton*

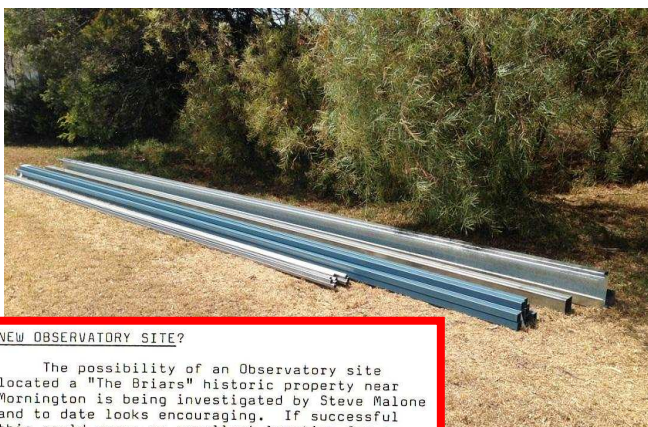
MPAS gets steel delivered for the new observatory - Yes we have started, no turning back now. Dave Rolfe & I unload the steel truck on a very hot morning. We started this project 5 years ago, with the pouring of the concrete slab. The new observatory will have a roll-off roof & will house 2 Goto telescopes. It will be on the south side of the lower shed. *Greg Walton*



<http://astronomy.swin.edu.au/staff/iandreoni.html>
https://www.researchgate.net/profile/Igor_Andreoni

Below - Dave Rolfe (President) unloading the steel truck.

Above: Igor Andreoni at left with President Dave Rolfe



NEW OBSERVATORY SITE?

The possibility of an Observatory site located a "The Briars" historic property near Mornington is being investigated by Steve Malone and to date looks encouraging. If successful this could prove an excellent location for a future Observatory.



Insert at Left - From ASF News Letter October 1990

January members BBQ & Working Bee on the 23rd - Starting at 4 pm with the cutting back of trees on the east side of the MPAS Briars site this making room for the new observatory. We also dug the drainage for the new observatory. After the BBQ I started cutting the steel - much easier working once the sun went down!

I would like to thank all those who helped out on the day. *Greg Walton*



Work continues on the Observatory!!!!

Below (1 to 3) - 25th January 2016 - Photos by Pia Pedersen

Below (4 to 6) - 30th January 2016 - Photos by Rod Brackenridge

Below (7 to 8) - 6th February 2016 - Photos by Fiona Murray



1



5



2



6



3



7



4



8

A Blast from the Past!!!

Right - From the ASF Scorpio news letter in March 1994 - Hopefully this time we will get our much awaited observatory; only been a 22 years delay! *Greg Walton*



Work on the observatory at The Briars has started. The site was surveyed during late January in preparation for a the development of working drawingsto be submitted to The Brairs management and Mornington Council. The submission accepted by the council last year requires us to develop a one year lease. After this we would negotiate a longer term lease prior to construction of a more substantial observatory. The photo below shows Peter and Ros .Skilton with D.Leggert discussing the site survey.

{ I think they were trying to find North !! }

February public night - It was a very long night with a large number of members of the public staying on till midnight to see Jupiter rising in the east. I did not get a chance to look in the big shed to check the numbers, but it must have been a full house. The public were well informed in astronomy & had lots of questions. They were also very impressed with the member's telescopes & what they saw through all the different telescopes. Young Noah brought his telescope along to show us all up - he got a 10 inch GOTO Dobsonian for his 10th birthday. 2 Photos left - Paul Albers & I doing some adjustments, trying to look as if we know what we were doing. With NO Moon in the sky we were able to visit many deep sky objects. A big thank you to all the member who helped out, Greg Walton

Working Bee 6th February - We did get some work done on the Observatory, a big thanks to the few who turned up on Saturday. We have the walls up now & painted. *Greg Walton* - See slide show link, Observatory

<https://www.dropbox.com/s/wsljj1kcd8h3som/Observatory%206feb2016.mp4?dl=0>

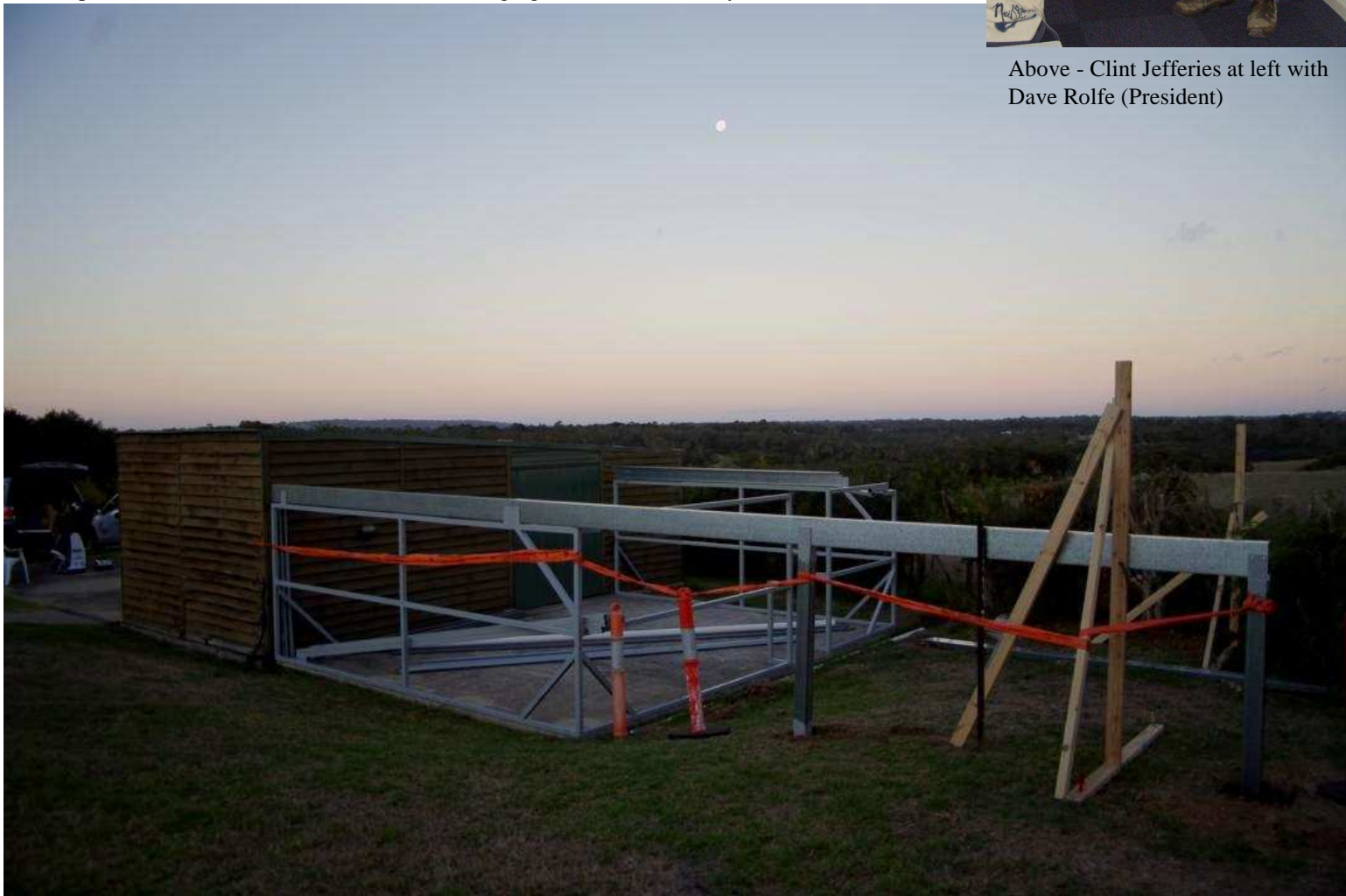
February Society Meeting - 20 members were in attendance. Dave Rolfe (President) chaired the meeting & talked on the recent discovery of gravity waves. Our guest speaker, Clint Jefferies from the ASV (see right) talked on radio astronomy & what the ASV has achieved at their LMDSS. You can access real-time data from their website <http://www.lmro.org.au/> Greg Walton did "sky for the month" & showed images of the new MPAS observatory. Members then chatted over coffee. *Greg Walton*

Telescope Learning Day & February 20th members BBQ - Telescope Learning Day started around 3pm with only a small number arriving at first. Dave Rolfe suggested we do some work on the observatory. We lifted the short 4 metre "C" beams that the roof rolls on in place & marked the hole for drilling. Once drilled we bolted the 2 short "C" beams in place. We then made 2 wooden support frames to hold the long 6 metre "C" beams in place & marked the hole for drilling. Once drilled, we bolted the 2 long "C" beams in place and marked the position of the holes for the 4 purport posts. We only got 2 of the holes dug, as the ground is very hard. Then we were able to bolt 2 of the support post in place ready for concrete.

See photo below - Note the almost full moon hanging over the observatory.



Above - Clint Jefferies at left with Dave Rolfe (President)



Telescope learning Day continues.

At 5pm Peter Lowe gave a talk on the different types of telescopes & how they work, after which, we had the members BBQ with the public. Then members helped the people who brought telescopes, showing them how to set up their telescopes, align the optics & finderscopes. As the sun set & the sky darkened, members showed many celestial objects through their own telescopes.

The Moon was almost full, which stole the show till Jupiter with it's 4 moons popped up over the eastern horizon. We also managed to see some of the brighter deep sky objects. It was a long day for many members finishing at midnight. Thankyou for all your help in making the day so successful, *Greg Walton*



Right - A 14th magnitude transient (likely supernova) was discovered in NGC 5128 (Centaurus A) on 8th February 2016. The discovery was announced in Astronomer's Telegram 8651. The new transient is currently 14th magnitude and located 0".0 east and 0".0 north of the centre of NGC 5128 It will probably brighten.



NACAA XXVII

National Australian Convention of Amateur Astronomers

This year NACAA will be hosted by the Sutherland Astronomical Society, NSW at University of Sydney.

From Friday 25th to Monday 28th March 2016

This is were to be, if you wish to talk to like minded people about your astronomy.

See www.nacaa.org.au for details.

Astronomy 2016-year books can be purchased @ \$23 for members.



A word from the Scorpius editing team.

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

Send them to:
Greg Walton
gwpas@gmail.com

Brett Bajada
Peter Lowe
Bruce Renowden

PUBLIC NIGHT THANK-YOU

Recent public viewing nights and school viewing nights have continue 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.

New Members

Welcome

Craig Baxter

Debra Lister & family

Anne Whitehead & family

Yves Moreau & family

Bill Chalkley & family

Peninsula Estate Agents

Alexandra Ross & Kye
McLeod. Family

Dean Mathers & Sue
Eldridge. Family

Melani, Noah, Dean &
Bhodi Hutchins. Family

2016 SUBSCRIPTIONS DUE

The ticking over of the New Year also means that society fees are now due to be paid. The society has worked hard to ensure that 2016 fees are still the same as last years prices. So to assist the society in maintaining the facilities and service we provide, we appreciate your prompt payment for the 2015-year ahead.

As a reminder, the following structure of the fees are:

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

SOCIETY FEES

Subscriptions can be paid in a number of ways:

- Direct Cash payments to a committee member
- Send a cheque or mail order to the society mail box 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.

Under the new government regulations, a list of financial member is required for insurance purposes, so please make certain your membership renewals are on time.

New MPAS Membership Fee Structure

We are establishing new membership and renewal guidelines for the MPAS to streamline our process. The main change will be that memberships are for the duration of the calendar year, as apposed to 12 months from the anniversary of signup. We acknowledge during 2016 some members may be disadvantaged for which we regret, but to improve our society this is unavoidable.

The new structure will be as follows;

- (1) Payment before End of March, 100% category fee will be for current calendar year.
- (2) Payment from 1st of April to End of September 50% fee for the remained of year. (pro-rata period)
- (3) Payment after 1st of October, 100% fee will be for following calendar year.

From next year all society fees will be due at the end of the year making the renewal process more streamlined and efficient. The 5 Year membership option will also be adjusted for the end of year date with June 30 being the cut-off.

| CALENDAR | | March / 2016 | | | | |
|-------------------------------------|---|--|---|----------------------------|---|---------------------------------------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | 1 Mars right of the Moon | 2 Last Quarter | 3 Saturn above the Moon | 4 Public Night 8pm <small>Shadow transit on Jupiter 10pm</small> | 5 ASV's Messier Star Party |
| 6 | 7 | 8 Venus above a thin Dawn Moon & Mercury on right | 9 ASV Meeting New Moon | 10 | 11 Shadow transit on Jupiter midnight | 12 |
| 13 | 14 Labour Day | 15 | 16 First Quarter Society Meeting 8pm | 17 St Patricks Day | 18 | 19 Members Night BBQ 6pm |
| 20 Equinox 3pm | 21 | 22 Jupiter left the Moon | 23 Full Moon Committee Meeting 8pm | 24 | 25 NACAA Good Friday | 26 NACAA Easter Saturday |
| 27 NACAA Easter Sunday | 28 NACAA Easter Monday Mars right of the Moon | 29 Saturn right of the Moon | 30 | 31 | | |

Monthly Events & High Lights. - **Red Days** indicates School Holidays - **ASV's Messier Star Party on the 5th**
Public nights 4th, 8pm start - **Society Meeting** at 8pm on 16th @ the Peninsula School
Members Night BBQ 6pm at the Briars 19th - **NACAA 2016 - Sutherland society** 25th - 28th March
Evening - Shadow transit on Jupiter 4th & 11th - Jupiter left the Moon 22nd
Dawn - Venus above a thin Dawn Moon & Mercury on right on the 8th

| CALENDAR | | April / 2016 | | | | |
|------------------------------|--|--|-----------------------------------|----------------------------|---|-----------------------------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | | | 1 Last Quarter 1 Public Night 8pm | 2 |
| 3 Day Light Savings Ends | 4 | 5 | 6 Venus below a thin Dawn Moon | 7 New Moon | 8 | 9 |
| 10 | 11 | 12 Shadow transit on Jupiter 9:00 pm | 13 ASV Meeting | 14 First Quarter | 15 | 16 |
| 17 | 18 Jupiter left the Moon | 19 Shadow transit on Jupiter 10:30 pm | 20 Society Meeting 8pm | 21 | 22 Full Moon | 23 Members Night BBQ 6pm |
| 24 Mars right of the Moon | 25 ANZAC DAY Saturn right of the Moon | 26 | 27 Committee Meeting 8pm | 28 | 29 | 30 Last Quarter |

Monthly Events & High Lights. - **Red Days** indicates School Holidays
Public nights 1st 8pm start - **Society Meeting** at 8pm on 20th @ the Peninsula School
Members Night BBQ 6pm at the Briars 23rd
Evening - Shadow transit on Jupiter 12th & 19th - Jupiter left the Moon on the 18th
Evening - Saturn right of the Moon on the 25th
Dawn - Venus below a thin Dawn Moon on the 6th

Note this years the Members night BBQ's will be the first Saturday after the Society Meeting.
 Also General Meetings will be called Society Meetings under the new regulations.

Sky for March - The highlight this month is 2 double shadow transit on Jupiter.

The first is on in the evening on the 4th of March starting at about 7 degrees above the eastern horizon.

Jupiter's Europa & Io shadow transit will be best viewed around 11pm as shown in computer generated picture below.

Europa shadow starts
8:50pm

Europa transit starts
9:02pm

Io shadow starts
10:29pm

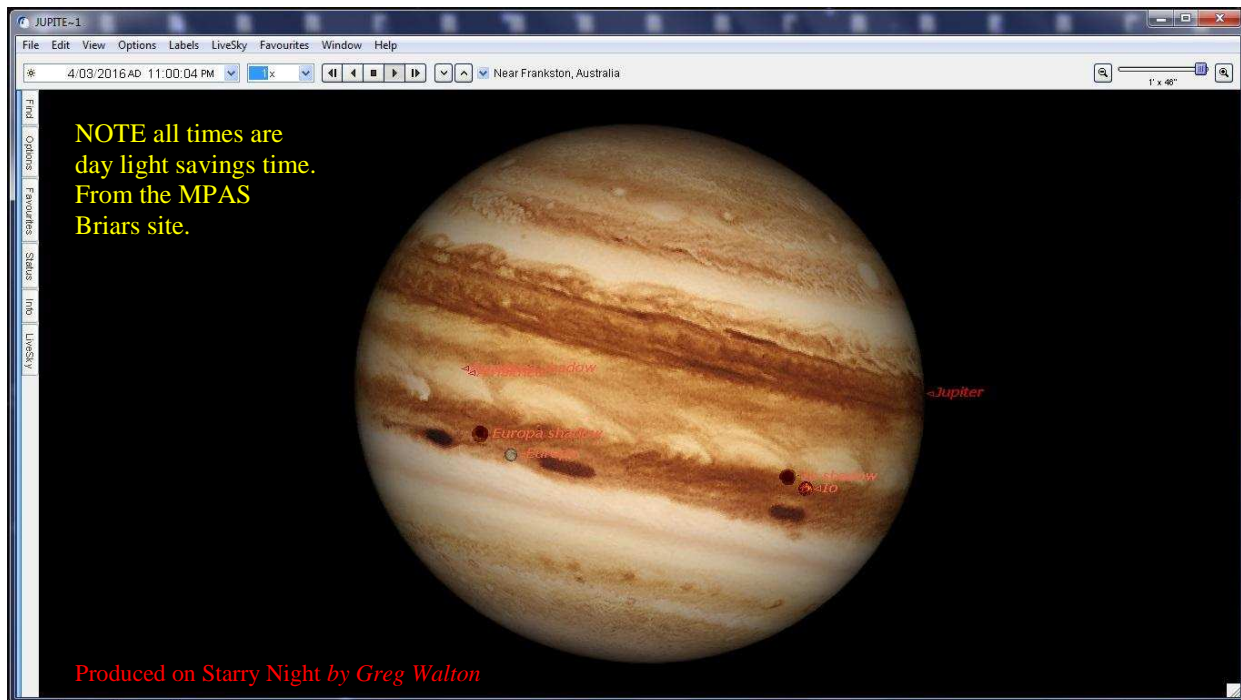
Io transit starts
10:35pm

Europa shadow exits
11:39pm

Europa exits
11:48pm

Io shadow exits
12:47am

Io exits
12:51am



The Second is on in the evening on the 11th about 32 degrees above the North eastern horizon.

Jupiter's Europa & Io shadow transit will be best viewed around 1am as shown in computer generated picture below.

Also Io transits faster than Europa so Io almost catches up Europa.

Europa transit starts
11:17pm

Europa shadow starts
11:25pm

Io transit starts
12:19am

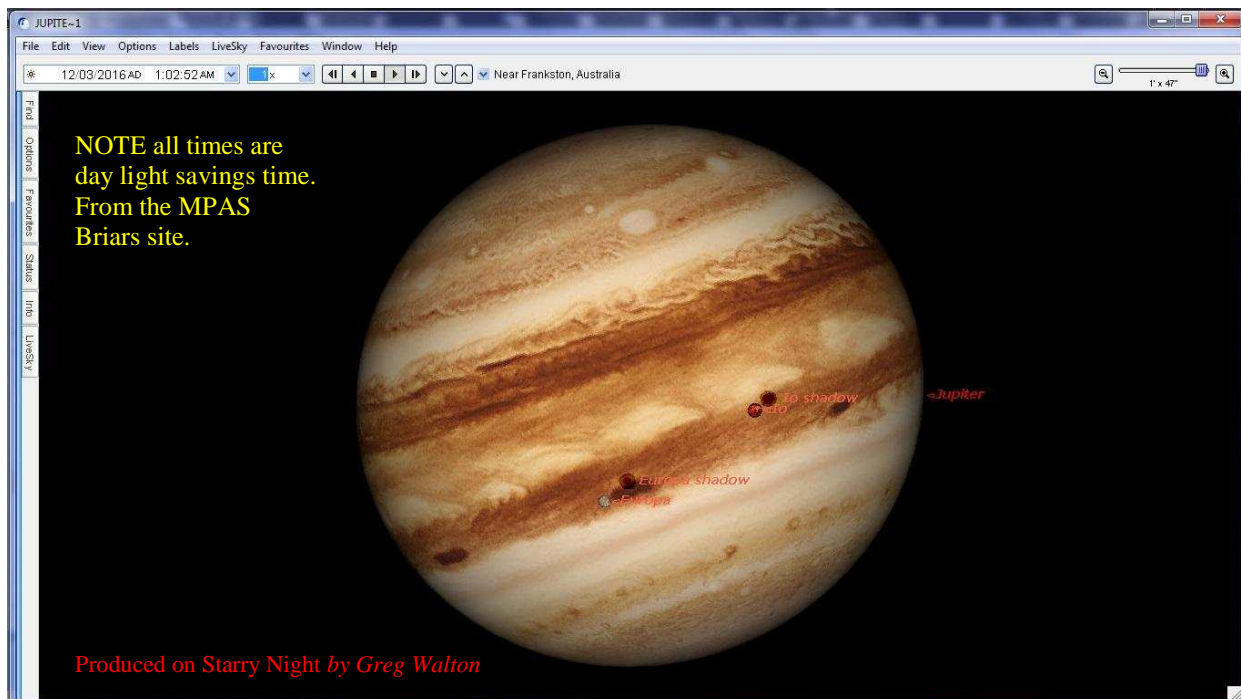
Io shadow starts
12:23pm

Europa exits
2:05am

Europa shadow exits
2:17apm

Io exits
2:26am

Io shadow exits
2:41am



I find it very interesting to see things happening on another world through my telescope, especial a double shadow transit were you get to see 2 black dots moving across Jupiter at the same time.

A great Photo opportunity for the more experienced. You will need a telescope with a long focal length.

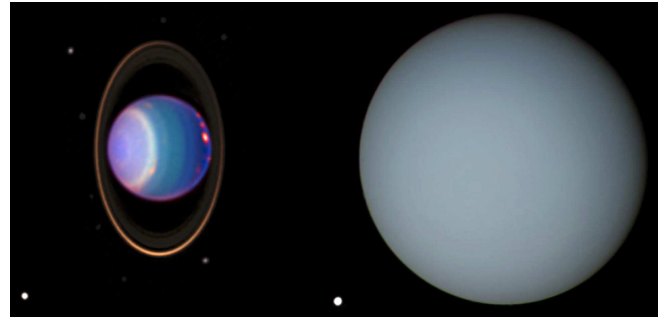
Also in April they are 2 more shadow transits, the first is on the 12th at 9pm & the second is on the 19th at 10:30pm So I hope to see your images for coming Scorpius News Letters.

ASTRO NEWS

By Peter Lowe

2015 Astro-History.

Astronomy is an ever-changing story and the year 2015 was important in solar system exploration. It marks the end of the exploration of the inner solar system and the start of the exploration of the outer solar system. After ten years travel time the New Horizon space probe finally reached Pluto, the last of the recognized planets or the first visit to a Kuiper Belt object. Trevor Hand and I have presented astronomy talks to the general public and local schools for well over twenty years, something we both enjoy doing. Trevor tends to concentrate upon the latest discoveries while I tend to focus (pardon the pun) on more basic astronomy. My favourite presentation is the basic solar system and increasingly I am becoming aware that the information being presented is really astronomical history and most of the audience may not have been alive when that history was made. For instance the Apollo landings on the Moon were almost 50 years ago and the Challenger disaster some 30 years ago. Interestingly the last and only visit to planet Uranus was also 30 years ago when the space probe Voyager 2 flew past that planet in Jan 1986. During the 5.5 hour flyby the probe, which got within 81,500 kilometres of the surface revealed the coldest planet known in our solar system because it appears to have no internal heat source. The atmosphere of Uranus is 85 percent hydrogen and 15 percent helium and there is evidence of a boiling ocean about 800 kilometres below the cloud tops. Uranus is tipped on its side relative to its orbital plane presenting a magnetic field radically different from any other encounter. The magnetic field is not coincident with the centre of the planet and has its magnetic poles close to the equator. The surface magnetic field of Uranus is stronger than that of Saturn and its magnetic tail twists into a helix stretching some 10 million kilometres away from the sun. It makes you wonder what else there is to discover now we have made our first tentative steps into the outer solar system. I hope Trevor and I can maintain the excitement of these discoveries in our talks. Remember what is boring history today was exciting history when it occurred.



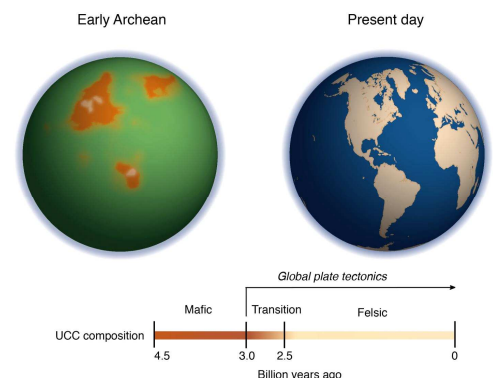
Opportunity Reaches 12 years on Mars

After 12 years on Mars Opportunity rover is still alive a well exploring 'Marathon Valley' on the rim of Endeavour crater. The rover is currently sitting out the Martian winter on a north-facing slope for improved solar array energy production. The winter solstice occurred Jan. 3, 2016, although solar insolation has already started to improve. While waiting a near-term objective is to position the rover to be able to grind a high-value surface target with the Rock Abrasion Tool (RAT). This target may hold some of the clues as to the origin of the clay spectral signature detected in Marathon Valley. So far the rover has travelled 43 kilometres. Opportunity's twin rover Spirit unfortunately died years ago. Both rovers have provided invaluable insight into Martian geology, weather and climate history. Endeavour crater is a large crater thought to be an old lake site and was subjected to a massive flash flood event. The further journeys of Opportunity will continue to explore this ancient lakebed.



When Plate Tectonics Started?

The Earth-Moon system is unusual in a planetary sense because it formed after an impact between two co-orbital planets. The planet's cores sank into the early Earth and its crustal material was blow into space then to coalesce into our Moon leaving the early Earth to form another crust. Today the Earth has an active crust made of large tectonic plates in constant movement. When did this start? Recent research into the composition suggests the Earth's granite magnesium poor continents formed approximately 3 billion years ago not the suggested 4.5 billion or 800 million. The image at right depicts what Earth might have looked like more than 3 billion years ago in the early Archean before plate tectonics developed.

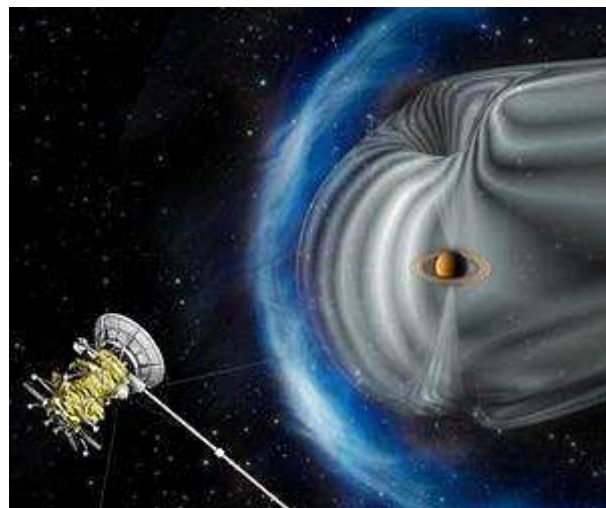


New Star Formation in Globular Clusters

The accepted model posits that stars form inside gas clouds creating star clusters. As stars age and explode they seed the cloud with heavier elements and the next generation of stars have higher levels of metallicity. Our Sun is thought to be such a second-generation star. A new model of star formation has been found inside globular clusters. Globular clusters are compact swarms of stars containing hundreds to millions of stars and are a favourite target for amateurs. Astronomers had long thought globular clusters formed their millions of stars in bulk at around the same time, with each cluster's stars having very similar ages. A new study of the massive globular cluster NGC 1783 in the Large Magellanic Cloud, suggests the cluster swept up stray gas and dust from outside the cluster to give birth to three different generations of stars. Using Hubble Space Telescope observations a research team has for the first time found young populations of stars within globular clusters that have apparently developed courtesy of star-forming gas flowing in from outside of the clusters themselves. This method stands in contrast to the conventional idea of the clusters' initial stars shedding gas as they age in order to spark future rounds of star birth. Globular clusters have turned out to be much more complex than we once thought. Within NGC 1783, astronomers identified an initial population of stars aged 1.4 billion years, along with two newer populations that formed 890 million and 450 million years ago. Once the most massive stars form they explode in supernovae after only about 10 million years clearing out any remaining gas and dust. The new findings suggests the lower-mass stars, which live longer and die in less violent ways, may allow the cluster to build up additional gas and dust by accreted gas from the cluster's environment.

Cassini Starts its Final Year at Saturn

During January NASA's Cassini spacecraft entered the final chapter in its exploration of Saturn. After a 23 second rocket burn it entered a higher inclination orbit intended to send it toward the massive moon Titan and after a series of gravity-assist flybys the spacecraft's orbit will be reshaped, sending it to increasingly higher inclinations with respect to Saturn's equator. The spacecraft has been in an equatorial orbit around Saturn since 2015 but this new and final phase of the mission tilts the orbit out of Saturn's ring plane. The targeted orbit will be a path that will carry it high above Saturn's poles, approaching just outside the planet's main rings - a period the mission team calls the "F-ring orbits. After 20 F-ring orbits, Cassini will begin a new task, in which the spacecraft will pass 22 times between the innermost rings



and the planet before plunging into Saturn's atmosphere ending its journey on Sept. 15, 2017. The final views from inside the rings will no doubt be spectacular before its fiery demise. The end of a highly successful and historic, hard working space probe destined to become part of its target planet.

Now That's a Big Solar System

During the formation of solar system's many planets are formed and subsequently destroyed or ejected entirely from the system. The ejected planets are detected as isolated bodies adrift in interstellar space. Several such isolated planets have been observed. One such planet, known as 2MASS J2126-8140, has been found to be in a loose orbit around a nearby star taking nearly a million Earth years to orbit at a distance more than 140 times wider than Pluto's, making it easily the largest solar system ever found. An international team of scientists studied 2MASS J2126-8140, a gas giant planet around 12 to 15 times the mass of Jupiter, as part of a survey of several thousand young stars and brown dwarfs close to our solar system. 2MASS J2126-8140's parent is a red dwarf star called TYC 9486-927-1 about 100 light-years from Earth. Viewed from the planet its star would appear as a moderately bright star in the sky, and light would take about a month to reach it. It is speculated that the planet and the star formed 10 to 45 million years ago from a filament of gas that pushed them together in the same direction when they have become very weakly gravitational linked. Only a handful of extremely wide pairs of this kind have been found in recent years. The distance between the new pair is 6,900 AU or 0.1 light-year - nearly three times the previous widest pair, which is 2,500 AU. Gravitationally they are so tenuously bound that a passing nearby star would disrupt their orbit completely."

Death of a Caravan

Before becoming the Mornington Peninsula Astronomical Society, the Astronomical Society of Frankston had a lamentable history in building observatories. The very first observatory planned was at the Frankston High School. Unfortunately the fibreglass dome being constructed was burnt down by children playing with matches plus a change in the school principal put pay to that observatory project. Some society members began visiting the local parks with telescopes for public viewings at a charge of charged 20 cents per person. During this time strenuous efforts were made to find another observatory site. The President at the time Steve Malone discovered that the land now occupied by the Peninsula Hospital at Karingal was untitled and owned by the council. He started working with the local and state government members to have a land allotment donated. Designs for the Matthew Flinders Observatory were drawn up, a display model built and funding had reached the preliminary approval stage when two disasters struck. Firstly, the government changed at a state election and planning for the hospital was approved. What next? The incoming government was not interested in anything from the outgoing government so no land and no money. Back to square one.

The society was still conducting public views at the local parks and by now also some of the schools. Some of the local ice cream vendors even starting coming to our events in the hope of selling product. Not to be down heartened it was decided to raise the standard of our park-viewing program and Steve Malone with Laurie McIntyre constructed a special caravan equipped with lift up doors and cradles to carry telescopes. The theme was "ASTRONOMY ON THE MOVE". This caravan became the main stay of the society's park viewing activities for many years and even featured in several Australia Day parades. "ASTRONOMY ON THE MOVE" was highly successful attracting sponsorship from Pilkington Glass and other local businesses becoming an alternative source of funding to the membership fees.

In the early 1980's, Dr. Peter Norman (now a life member) made an approach to build an observatory at the Frankston Teachers College if the society could supply a suitable telescope. A roll off roof observatory (The BJSmith Observatory) was duly built and the caravan was placed into storage then used only for occasional council events. When Steve Malone died the caravan was re-located to the Briars where it resided until last December. Work has now started on our next permanent observatory at The Briars Astronomy Centre and the caravan, its mission complete was advertised on Gumtree as "an old 1950's caravan suitable for restoration or recycling (free)" Within minutes a young couple responded, coming the next day to collect it and take it travelling. So, in space mission speak it has been "re-tasked" and you may see it again on the road one day.

It was sad to see the caravan leave us with such a rich history spanning the society's development from a small but active group of enthusiasts to the MPAS society we know and love today. I know Steve Malone, Laurie McIntyre, Bruce Tregaskis and the other early members would have been sad but proud to see our caravan depart.

By Peter Lowe



ASF in January 1997 - Photo by Peter Skilton



Working Bee May 2000 - Photo by John Cleverdon



2016 Mornington Peninsula Astronomy School (M.P.A.S.)

Members visiting the Briars recently would have seen the construction work for our latest observatory. The observatory will contain two computer-controlled instruments suitable for public viewing, astrophotography and personal observing. These facilities will be available for member's use as well as demonstrations on public viewing nights. Over the years the society has constructed several astronomical observatories and for various reasons has had to abandon them. The last observatory was the acclaimed but recently departed "Astronomy On The Move" Caravan. The caravan was our principal public "portable" observatory for many years and was often seen at local parks and council events with members of the public shown the night skies. One particularly successful event I remember was observing the transit of Mercury in 2003 from Ballam Park at which literally hundreds of people came to watch the event and stayed on for the evening. At the Frankston Teachers College (now Monash University) the B.J.Smith observatory housed a 12.5" Newtonian telescope. Built in the 1980's this observatory was used for private observing as well as regular astronomy lectures and observing sessions. Finally dating from the mid-1990's the Briars Astronomy Centre houses several telescopes that can be rolled out onto the various observing platforms. It was considered that powered observing platforms provided the most convenient method of viewing where members could use their personal instruments or society instruments. Each of these observatories was successful in their own way and each had their own positives and negatives. The new observatory is hoped to be as versatile as possible meeting the new demands for amateur astronomy in the 2000's.



Standard Post Wed, June 10, 1981

OUT & ABOUT

People

Things are looking up

AMATEUR astronomy in Frankston is looking up now that members of the Astronomical Society have completed reconditioning of their large telescope.

The instrument, known as the B. J. Smith Telescope, is a reflecting unit with a mirror 310mm in diameter.

The mirror was recently reinstalled in the telescope tube after being completely reground and silvered. Grinding was carried out by Bruce Tregaskis, secretary of the society.

This telescope will be one of a number of instruments available for use at a public viewing night on Friday, June 12 in

room 16 of Frankston State College at 8 p.m.

In the event of cloud cover preventing viewing, astronomical films will be screened.

A small charge will be made to cover costs, including supper.

Further details about the night or the society may be obtained from Stephen Wilbourne, 783 7728.

• Steve Malone and Bruce Tregaskis make last minute adjustments before Friday's public viewing.



A long time practice associated with all these observatories has been conducting astronomy classes as part of our role in teaching astronomy. Bruce Tregaskis conducted the earliest astronomy classes in the 1970's at Frankston High School and I attended these as a young man. Later Peter Norman with other speakers organised astronomy classes at The Teachers College followed by observing sessions from the B.J.Smith observatory. In more recent time Peter Norman has continued teaching astronomy as a University of the Third Age presenter. When the society started using the Briars viewing site, astronomy talks and winter lecture series became an established activity. More recently Life Member, Ian Sullivan has been running Saturday morning astronomy classes from the Mornington library before attending the member's observing night at the Briars.

Now we are building a permanent observatory I am planning to restart astronomy classes at the Briars, starting slowly at first but I hope to incorporate these more firmly into the society activities. Initially classes will be held midyear and will incorporate viewing from the new observatory. I'm calling these classes MPAS, Mornington Peninsula Astronomy School and we will be looking at basic astronomy and observing techniques. Since the loss of the B.J.Smith observatory we have lost all the programmed observing activities from that time that encourage younger members to engage. Today observing has declined into what I call look-see viewing where we merely look at objects rather than learning how to engage in real observing. I hope we can re-engage members who want to take their astronomy to a new level.

MPAS Astronomy School starts on Thursday June 16th (the new observatory is expected to be running). The is no charge and coffee/biscuits are provided. Initially there will be 4 two-hours sessions and the format will be open discussion. Thursday nights have been selected because people are generally busy on Wednesdays and Saturdays.

If you wish to become involved please contact me via e-scoupius. Peter Lowe

The Mount Burnett Open Day

By Paul Albers, Vice President



One advantage being married to a wife who is educated in Astronomy, you can share your interests and Christmas presents. Having a nice Televue Nagler 13mm under the Christmas tree is one example. Another good example is attending the Mount Burnett Observatory open day on our 23rd wedding anniversary. Which I might add was Therese's suggestion!

The Mount Burnett Observatory is approximately 55kms from Melbourne. The Observatory is nestled within a few houses amongst some beautiful Gum trees. It is rather elevated where you can enjoy clear views to Celestial South, Eastern and the Northern Skies. The Aurora chasers within our club may also be interested in their direct views towards southern skies.



“With the observatory in a state of disuse, Monash University began negotiations in 2010 to decommission it. Initially the Astronomical Society of Victoria (ASV) was approached to take over the lease but the ASV declined. So it was that in June 2011 four senior members of the ASV (Ken Beard, Barry Cleland, Ray Schmidt and Perry Vlahos) and former professional astronomer James Murray formed the incorporated association Mt Burnett Observatory inc. with the intention of saving the Observatory. Several months of negotiations followed, but on December 1st 2011, a new lease was signed and Mt Burnett Observatory began a new life as a community astronomical observatory.” (<http://mtburnettobservatory.org/index.php/about-mbo/history>)

It was an easy drive to the Observatory but parking and space for a number of telescopes is limited. The Society is currently trying to raise funds for another Dome with more modern equipment. The site itself consists of the Observatory, a roll on roll off roof observatory which is used for storage and a log cabin as their club rooms. The Cabin is cozy and serves as a library, lecture room and a dining area. The library is well stocked and presented, the audio and visual utilities allows for an alternate form of entertainment during the cloudy nights.

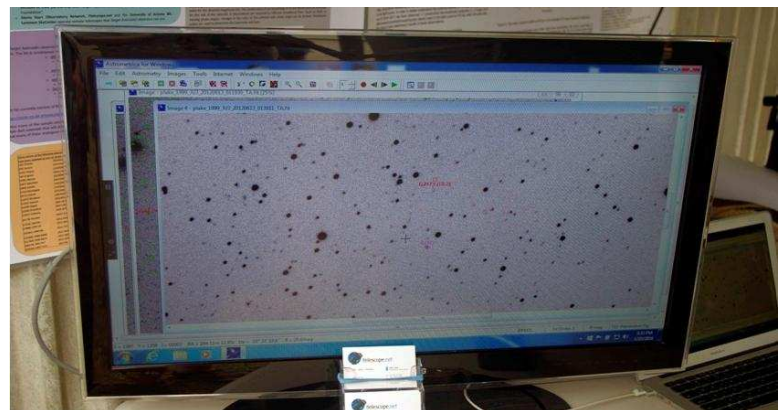
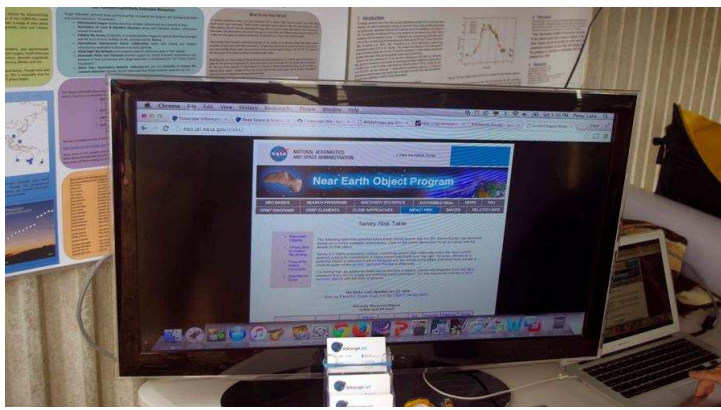


Photo By Ronald Fritz



The open day was well organised with tours and demonstrations of their facilities. We managed to view the Sun through a PST solar telescope, enjoy a 30 minute tour of the Observatory, help ourselves to tea and coffee and we were introduced to their Radio astronomy project “The Murchison Widefield Array: The Square Kilometre Array Precursor at Low Radio Frequencies” The Society was fortunate to receive some Radio Antennas for this project from The Curtin University. These antennas were made for resonance on 186.450Mhz. At present they have activated two of them which are linked to the collective project via the internet.

Another interesting project the society is participating in is the “Near Earth Object Project”. Peter Lake gave us an insight into this project and how the “MBO” is contributing towards it. Observing Asteroids and Comets, so to predict their orbits and their potential to hit the Earth was fascinating. Peter was able to link to remote telescopes and utilise the “Blink Method” (Placing plates of images in a time sequence to discover moving objects).



So we finally experienced the 30 minute tour of the Observatory itself. The Observatory houses an 18 inch SCT telescope. The Telescope has a focal length of 7.7 meters but has a flip eyepiece system which turns the telescope into a Newtonian, so there is an eyepiece focuser at both ends. The telescope in Newtonian mode boasts a focal length of 1.8 meters. The telescope sits on a massive Equatorial mount which is isolated from the main building. The telescope was mainly used for Spectrometry and photometry but is unsuitable for astrophotography due to the high PEC of the mount. The mount’s worm drive requires adjustment every two hours. Besides this the telescope is an excellent apparatus for observing deep sky objects. The Observatory required an elaborate restoration program from floor to roof top. The society has achieved this with excellent results.

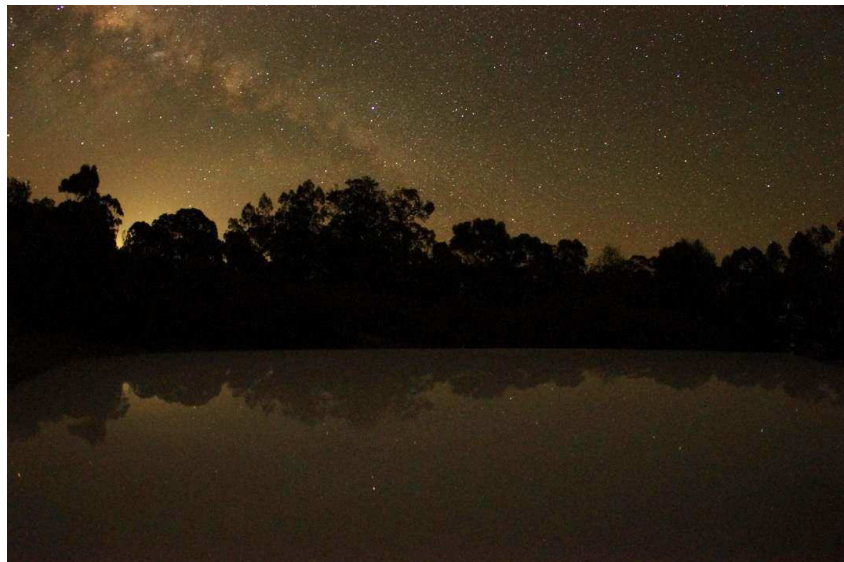


I managed to meet Chris Rudge, the President of the ASV, and we discussed the Victorian proposal regarding the light pollution committee they want to form. It has been rather successful in NSW with legislation being enforced on a State and Local government level. We are looking for two representatives from MPAS if anyone is interested (please contact me if you are). Chris was also interested in the progress of MPAS and the Observatory we are building. Cross pollination of members between the Societies has its advantages whether it's networking or sharing projects like Radio Astronomy in my opinion will enhance the amateur astronomical community.

I found the MBO society a resourceful and welcoming group, they have around 200 members and for a young society this is quite an achievement. I believe 400 people visited the Observatory and it was an informative and a fun day out.



Below right - NO!!! it's not a lake. I left the camera on the roof of the car, to capture this image, see photo below. I should polish the car roof before I try this again. *by Greg Walton*



THE SCORPIUS FILES

By Phil Holt
 FILE # 13760: Celebrating 350 years
 of the apple's contribution to science.

In 1664 Isaac Newton spent the
 summer at his mother's house.



LINCOLNSHIRE
 JULY 1664

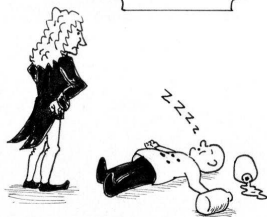
While walking in the gardens
 he sought inspiration.



Unfortunately the cook had made
 cider, and used all of the apples.

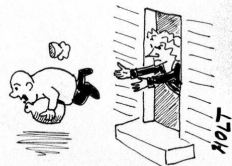


And again
 in 1665!



Only after dismissing the
 cook in 1666....

could gravitational inspiration be found,
 and a masterpiece later published.



MPAS Gallery, Moon by Tony Nightingale



Above - Caption: Bright Geminid meteor photographed on 2015 December 15 1330UT with the all sky hubcap camera. Detail and contrast is poor due to the hubcap fogging with dew. 20 seconds F2 1600 ISO. The Geminid 2016 (mislabelled) is an all sky photo from last year.

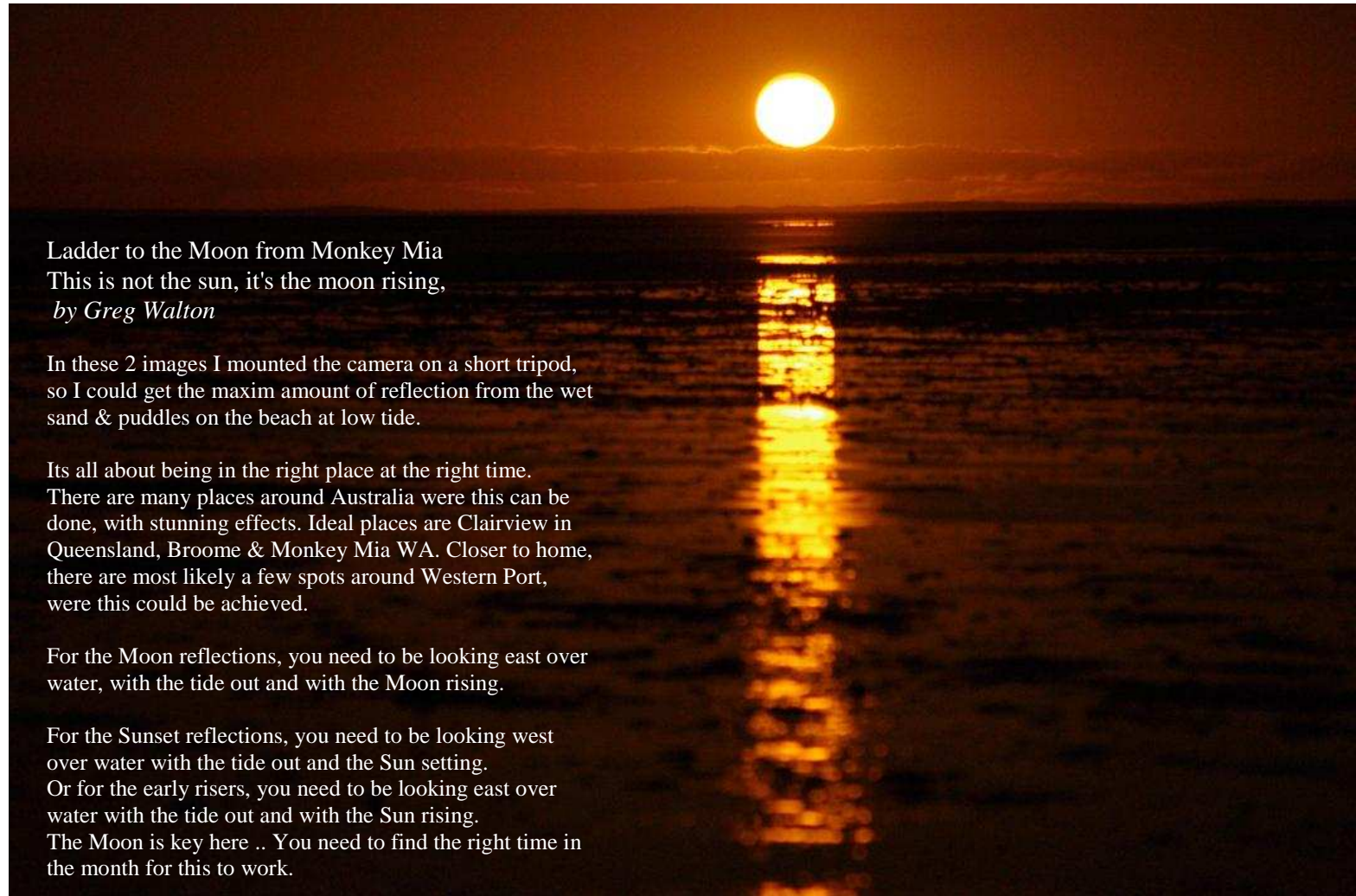
Left - Newtons apple is a full page cartoon I prepared to celebrate a significant year.

Regards - Phil Holt



I have two telescopes, a 70mm refractor which I use for viewing the moon and planets, and a 150mm Newtonian reflector which I use to take photographs of the moon. I have not yet tried photographing the planets as I don't have a computerized tracker. I have tried photographing the Milky Way from The Briars with my DSLR camera on a 30 second exposure, through an f3.5 lens at 1600 ISO but could not get the focus right. I now have a wide angle lens with a manual infinity setting so I hope for better results. To take shots of the moon, I fit a Universal Barlow and T-Adaptor to my Canon DSLR and insert it into the reflector telescope enabling it to act as a photographic lens. An example of a photo taken of the moon using this method is attached. *Regards Tony Nightingale*

MPAS Gallery - Sunset at Eighty Mile Beach WA, by *Greg Walton*



Ladder to the Moon from Monkey Mia
This is not the sun, it's the moon rising,
by Greg Walton

In these 2 images I mounted the camera on a short tripod, so I could get the maxim amount of reflection from the wet sand & puddles on the beach at low tide.

Its all about being in the right place at the right time. There are many places around Australia were this can be done, with stunning effects. Ideal places are Clairview in Queensland, Broome & Monkey Mia WA. Closer to home, there are most likely a few spots around Western Port, were this could be achieved.

For the Moon reflections, you need to be looking east over water, with the tide out and with the Moon rising.

For the Sunset reflections, you need to be looking west over water with the tide out and the Sun setting.
Or for the early risers, you need to be looking east over water with the tide out and with the Sun rising.
The Moon is key here .. You need to find the right time in the month for this to work.

Dave's Gallery

Right -

Sculptor (AKA the Silver coin, NGC253) taken on Thursday 3/12/15. With FLT132 Telescope with a STL Camera. 10 x 2 minute frame stacked of each LRGB filters.

Taken from Cranbourne.

By Dave Rolfe

Below -

Running Chicken IC2944, Taken on Feb 6th 2016 from Cranbourne.

By Dave Rolfe

Editors Notes -

Very nice image Dave.

This object lies between the southern cross & the bright nebula Eta Carina NGC3372 it can be seen from the Briars with the societies 18 inch telescope, thou I have trouble making a running chicken out of this object. *Greg Walton*



SOCIETY INFORMATION



Dave Rolfe



Paul Albers



Peter Skilton



Jamie Pole



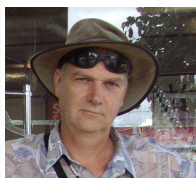
Trevor Hand



Stewart Gangell



Peter Lowe



Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

President: David Rolfe
Vice President: Paul Albers
Committee: Trevor Hand, Fiona Murray, Peter Lowe, Stewart Gangell, Greg Walton
Phone Contact: Peter Skilton - 0419 253 252

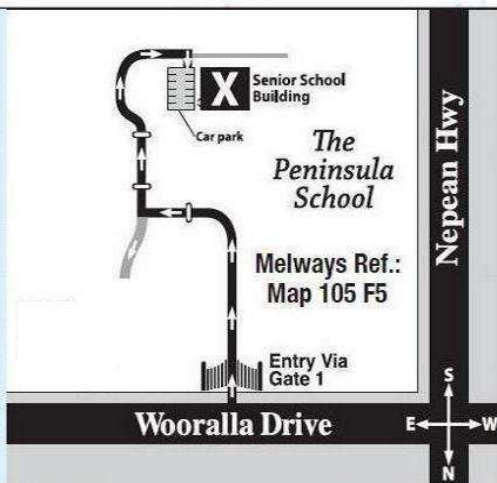
Secretary: Peter Skilton
Treasurer: Jamie Pole
Web Master: Steven Mohr
Scorpius Editor: Greg Walton
Library: Fiona Murray

SOCIETY MEETINGS

Meeting Venue: The Peninsula School, Wooralla Drive, Mt. Eliza, (Melways ref. 105/F5) in the Senior School at 8pm, on the 3rd Wednesday of each month (except December). Entry is via the main gate, off Wooralla Drive. (see map).

For additional details:
 Internet: <http://www.mpas.asn.au>
 email: welcome@mpas.asn.au

Phone: 0419 253 252
 Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.



LIBRARY

The Society also has books and videos for loan from it's library, made available on most members nights at The Briars site, contact Fiona Murray.

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 and event information as well as being able to join in discussions and ask questions with other members.

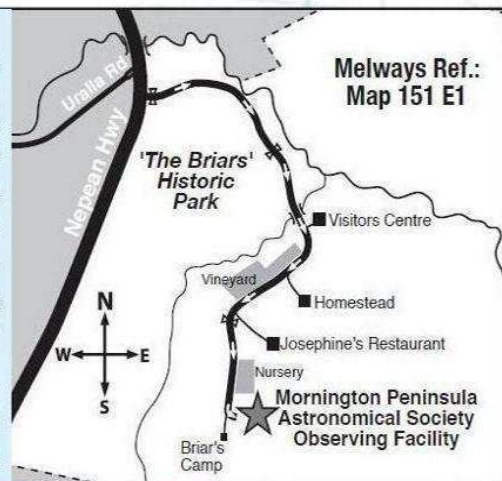
To join, go to: <http://groups.com/group/e-scorpius> and sign up to Yahoo groups - You require to sign up to Yahoo groups to join E-Scorpius. Once you have signed up at Yahoo groups, email welcome@mpas.asn.au saying that you want to join E-Scorpius and you will be added to the E-Scorpius list.

VIEWING NIGHTS - 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 either 9776 2074 or 0415 172 503 if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building.

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Members please write a story about your astronomy experiences and add some pictures. Send them to: Greg Walton gmpas@gmail.com