



Cover image - Xmas party 2014  
by John Cleverdon & Greg Walton

# SCORPIUS

THE JOURNAL OF THE  
MORRINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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The Morrington 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



## SCORPIUS The journal of the Morrington Peninsula Astronomical Society

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The Scorpius Newsletter is published online, once every two months for its membership, by the Morrington 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, Morrington Peninsula Astronomical Society



# SOCIETY NEWS

By Greg Walton

**November public night** - seen about 15 member and about 70 public in attendance under a clear sky, it was a bit hard to find our usual deep sky objects with a full Moon. So most of the scope showed the Moon. Mars was the only planet in the sky but very small as it's heading around the other side of the sun. Trevor gave another excellent talk in the shed. Also 2 members of the public brought there telescope along for us to assemble. Thanks to all members who helped out.

**November Annual Society Meeting** - seen 27 members in attendance Peter Lowe chaired the meeting and presented the Annual Society & Treasurers report for 2014. The 2015 official positions are: President - Peter Lowe, Vice President - David Rolfe, Secretary - Peter Skilton, Treasurer - Jamie Pole & 5 Ordinaries committee members - Trevor Hand, Fiona Murray, Paula Ritchens, Paul Albers, Clemens Unger. Yuri Levin, Monash University who specialises in Gravity Waves and Black Holes talked on the topic of "Black holes in Astrophysics" Topics discussed was, how time is affected around the black hole and there feeding habits, also some very nice computer simulated videos of stars orbiting around the black hole at the centre of our milky way galaxy. Then members chat over coffee.

**November members BBQ** - seen about 20 member in attendance, grass was cut & trees pruned. Sky was cloudy only one telescope setup. Thankyou Peter Lowe (President) for buying in all the food. Thanks Guys for help with the cooking and thanks Girls for setting up the food and the cleaning up after wards. Special thanks to Pia for mopping all the floors.

**December public night** - the sky was totally clouded out, even so about 40 member of the public showed up, must be Trevor Hand's presentations bring them in. Also about 12 society members worked hard to entertain the public showing of the telescopes. Thanks to all members who helped out.

**December Xmas members BBQ on the 13th** - before hand Dave did a great job of cutting the grass while Peter Lowe zeroed the weeds. Pia decorated the tables & set up the Xmas tree. I put the new 2015 calendar on the out side notice board. There was about 30 member in attendance, we did the annual group photo. The sky started of all clear but slowly clouded over with only one telescope setup, by Alex hoping to image comet Lovejoy 2014. Thankyou Peter Lowe (President) for buying in all the food. Thanks Guys for help with the cooking and thanks Girls for setting up the food and the cleaning up after wards.

**Please remember we run 3 public nights in January 2nd, 9th & the 16th**

## Bendigo District Astronomical Society host VASTROC - 18th to 19th April

Hello Fellow Astronomy Enthusiasts,

We are now less than 4 months before VASTROC 2015 will be hosted by Bendigo District Astronomical Society at Discovery Science & Technology Centre, Bendigo. To find out more info on this event for amateur astronomers by amateur astronomers, visit the following web site: [vastroc.net](http://vastroc.net)

I would like the following message to be passed on to your fellow members at your next club meeting and in your next club magazine (pdf file attached to help) re VASTROC 2015. Registration information is now available and a call for speakers. Sincerely yours, Chris Wyatt, Media Officer VASTROC 2015.

\_ spacenaut@iinet.net.au\_ @Spacenauchris " @BDASPresident



### New Members

### Welcome

Jacque Milner

Family

Leon Haywood

Ian Haywood

Hannah Mendelson



**Astronomy 2015-year books can be purchased @ \$25 for members.**

## 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.

## 2015 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 2015 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.

### A word from the Scorpius editing team.

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

Send them to:

Brett Bajada

Peter Lowe

Greg Walton

gwmpas@gmail.com

CALENDAR		January / 2015				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 New Years Day	2 Public Night 8pm	3
4	5 Full Moon	6	7 Callisto shadow transit on Jupiter	8 Jupiter 8 degrees left of the Moon	9 Public Night 8pm	10 ASV Meeting
11 Venus & Mercury 0.6 degrees apart in the west	12	13 First Quarter	14 Io & Europa shadow transit on Jupiter	15	16 Public Night 8pm	17 Saturn above the Moon in the east
18	19	20 New Moon Neptune 0.2 degrees N of Mars	21 Society Meeting 8pm	22 Io shadow transit on Jupiter	23 Mars 4 degrees left of the Moon in the west	24 Members Night BBQ 6pm
25 Australia Day	26 Australia Day Holiday	27 Last Quarter	28 Committee Meeting 8pm	29 Io shadow transit on Jupiter	30	31

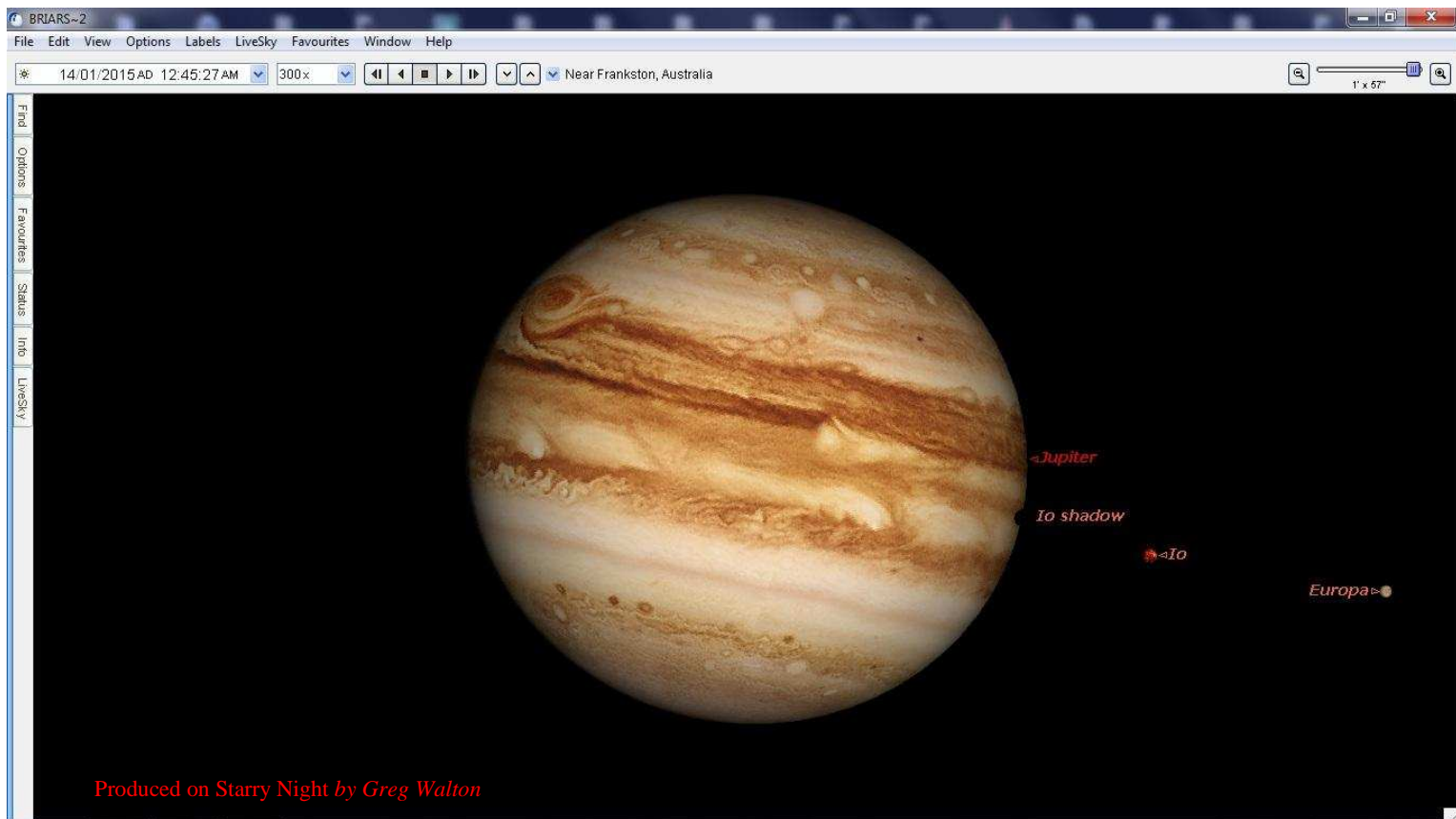
**Monthly Events & High Lights. Watch out for Auroras- Red Days** indicates School Holidays  
**Public nights** 2nd, 9th, 16th, 8pm start - **Society Meeting** at 8pm on 21st @ the Peninsula School  
**Members Night BBQ** 6pm at the Briars 24th **Evening** - Venus & Mercury 0.6 degrees apart in the west  
**Evening** - Callisto shadow transit on Jupiter 7th - Io & Europa shadow transit on Jupiter 14th starts at 1am  
**Evening** - Io shadow transit on Jupiter 22nd - Io shadow transit on Jupiter 29th - Neptune 0.2 degrees N of Mars 20th

CALENDAR		February / 2015				
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Neptune 0.8 degrees North of Venus	2	3	4 Full Moon Jupiter 5 degrees left of the Moon	5	6 Public Night 8pm	7 Jupiter at opposition 4am
8	9	10	11 ASV Meeting	12 First Quarter	13 Saturn 2 degrees right of the Moon in morning	14 Valentines Day Comet Panstarrs 0.4 from NGC45
15	16	17	18 Society Meeting 8pm	19 New Moon	20	21 Members Night BBQ 6pm APWS 1pm
22 Venus & Mars 0.5 degrees apart	23	24	25 Planning Committee Meeting 8pm	26 Last Quarter	27	28
					Venus & Mars left of the Moon on the 21st	

**Monthly Events & High Lights. - Watch out for Auroras**  
**Public nights** 6th 8pm start - **Society Meeting** at 8pm on 18th @ the Peninsula School  
**Members Night BBQ** 6pm at the Briars 21st also Venus & Mars left of the Moon on the 21st  
**APWS - Astrophotography Workshop 21st February @ the Briars 1:00 pm**  
**Evening** - Neptune 0.8 degrees North of Venus 1st - Venus & Mars 0.5 degrees apart 22nd  
**Dawn** - Saturn 2 degrees right of the Moon in morning 13th

**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.

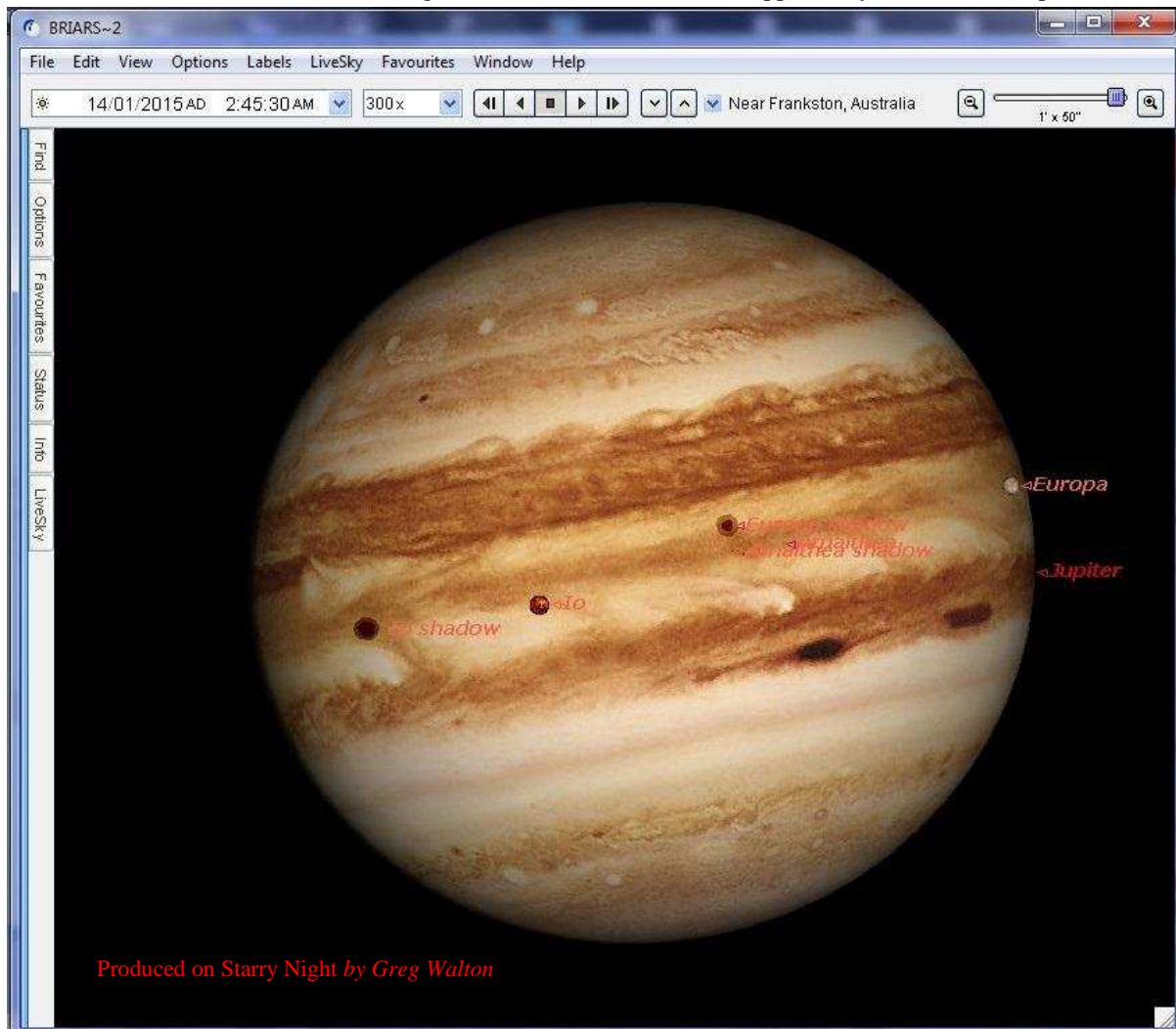
Sky for January - The highlight this month is a double shadow transit on Jupiter. Jupiter's Io & Europa shadow transit, starts at 12:40am in the morning on the 14th high in the North east & finishing at 5:40am with Europa exiting just before sun rise.



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 at the same time. Also if you could stand on the surface of Jupiter were the shadow is, you would see an eclipse of the sun but as Jupiter rotates once every 10 hours the shadow would move at about the same speed as the surface of Jupiter. Making a very long eclipse maybe 1/2 hour or more also the shadow is much larger than earths Moon. A Photo opportunity for the more experienced.

- Io shadow starts  
12:40am
- Io transit starts  
1:15am
- Europa shadow starts  
1:30am
- Europa transit starts  
2:40am
- Io shadow exits  
3:00am
- Io shadow exits  
3:35am
- Europa shadow exits  
4:25am
- Europa exits  
5:40am twilight
- Sun rise 6:12am

NOTE all times are day light savings time.  
From the MPAS Briars site.





# Mornington Peninsula Astronomical Society - 2015 Calendar

Day	January	February	March	April	May	June	July	August	September	October	November	December	Day
1	<b>Th</b> New Years Day	Su	Su	<b>W</b>	<b>F</b> Public Night	M	<b>W</b>	S	T	<b>Th</b>	Su	T	1
2	<b>F</b> Public Night	M	M	<b>Th</b>	S	T	<b>Th</b> ○	Su	W	<b>F</b> Public Night	M	W	2
3	<b>S</b>	T	T	<b>F</b> Good Friday Public Night	Su	W ○	<b>F</b> Public Night	M	Th	<b>S</b>	T Cup Day	Th	3
4	<b>Su</b>	W ○	W	<b>S</b> Easter ○	M ○	Th	<b>S</b>	T	<b>F</b> Public Night	<b>Su</b> Daylight Savings Starts	W	<b>F</b> Public Night	4
5	<b>M</b> ○	Th	Th	<b>Su</b> Daylight Savings Ends	T	<b>F</b> Public Night	<b>Su</b>	W	S	M	Th	S	5
6	<b>T</b>	<b>F</b> Public Night	<b>F</b> ○	<b>M</b> Easter	W	S	<b>M</b>	Th	Su Fathers Day	T	<b>F</b> Public Night	Su	6
7	<b>W</b>	S	S	<b>T</b>	Th	Su	<b>T</b>	<b>F</b> Public Night	M	W	S	M	7
8	<b>Th</b>	Su	Su	<b>W</b> ASV Meeting	F	M Queens Birthday	<b>W</b> ASV Meeting	S	T	Th	Su	T	8
9	<b>F</b> Public Night	M	M Labour Day	<b>Th</b>	S	T	<b>Th</b>	Su	<b>W</b> ASV Meeting	F	M	<b>W</b> ASV Meeting	9
10	<b>S</b>	T	T	<b>F</b>	Su Mothers Day	<b>W</b> ASV Meeting	<b>F</b>	M	Th	S	T	Th	10
11	<b>Su</b>	<b>W</b> ASV Meeting	<b>W</b> ASV Meeting	<b>S</b>	M	Th	<b>S</b>	T	F	Su	<b>W</b> Remembrance ASV Meeting	F ●	11
12	<b>M</b>	Th	Th	<b>Su</b>	T	F	<b>Su</b>	<b>W</b> ASV Meeting	S	M	Th ●	<b>S</b> Members Xmas Party	12
13	<b>T</b>	F	F	M	<b>W</b> ASV Meeting	S	M	Th	Su ●	T ●	F	Su	13
14	<b>W</b>	S Valentines Day	S	T	Th	Su	T	F	M	<b>W</b> ASV Meeting	S	M	14
15	<b>Th</b>	Su	Su	<b>W</b> MPAS Meeting 8pm	F	M	<b>W</b> MPAS Meeting 8pm	S ●	T	Th	Su	T	15
16	<b>F</b> Public Night	M	M	Th	S	T	Th ●	Su	<b>W</b> MPAS Meeting 8pm	F	M	W	16
17	S	T	T St Patricks day	F	Su	<b>W</b> MPAS Meeting 8pm ●	F	M	Th	S	T	Th	17
18	<b>Su</b>	<b>W</b> MPAS Meeting 8pm	<b>W</b> MPAS Meeting 8pm	<b>S</b> Members Night 6pm	M ●	Th	<b>S</b> Members Night 6pm	T	F	Su	<b>W</b> MPAS Meeting 8pm	F	18
19	<b>M</b>	Th ●	Th	Su ●	T	F	Su	<b>W</b> MPAS Meeting 8pm	<b>S</b> Members Night 6pm	M	Th	<b>S</b>	19
20	<b>T</b>	F	F ●	M	<b>W</b> MPAS Meeting 8pm	<b>S</b> Members Night 6pm	M	Th	<b>Su</b>	T	F	<b>Su</b>	20
21	<b>W</b> MPAS Meeting 8pm ●	<b>S</b> APW 1pm MembersNight	<b>S</b> SD 1pm MembersNight	T	Th SPSP	Su	T	F	<b>M</b>	<b>W</b> MPAS Meeting 8pm	<b>S</b> Members Night 6pm	<b>M</b>	21
22	<b>Th</b>	Su	Su	<b>W</b> Committee	F	M	<b>W</b> Committee	<b>S</b> Members Night 6pm	<b>T</b>	Th	Su	<b>T</b>	22
23	<b>F</b>	M	M	Th	<b>S</b> Members Night 6pm	T	Th	Su	<b>W</b> Planning Committee	F	M	<b>W</b>	23
24	<b>S</b> Members Night 6pm	T	T	F	Su	<b>W</b> Committee	F	M	<b>Th</b>	<b>S</b> Members Night 6pm	T	<b>Th</b>	24
25	<b>Su</b> Australia Day	<b>W</b> Planning Committee	<b>W</b> Committee	S ANZAC Day	M	Th	S	T	<b>F</b>	Su	<b>W</b> Committee	<b>F</b> ○ Xmas Day	25
26	<b>M</b> Australia Day Holiday	Th	Th	Su	T	F	Su	<b>W</b> Committee	<b>S</b>	M	Th ○	<b>S</b> Boxing Day	26
27	<b>T</b>	F	F	M	<b>W</b> Planning Committee	<b>S</b>	M	Th	<b>Su</b>	T ○	F	<b>Su</b>	27
28	W	S	<b>S</b>	T	Th	<b>Su</b>	T	F	<b>M</b> ○	<b>W</b> Committee	S	<b>M</b>	28
29	Th		<b>Su</b>	W	F	<b>M</b>	W	S	<b>T</b>	Th	Su	<b>T</b>	29
30	F		<b>M</b>	Th	S	<b>T</b>	Th	Su ○	<b>W</b>	F	M	<b>W</b>	30
31	S		<b>T</b>		Su		F ○	M		S Halloween		<b>Th</b> New Years Eve	31

<p><b>YELLOW</b> - MPAS Meeting all @ the Peninsula School 8pm  <b>GREEN</b> - Public nights all @ the Briars 8pm  <b>BLUE</b> - Members Only nights all @ the Briars 6pm  <b>PURPLE</b> - Committee meetings @ the Briars 8pm  <b>Gray Boxes</b> - Weekends &amp; Public Holidays  <b>PINK</b> - ASV General Meeting all @ the Herbarium Melbourne 8pm</p> <p>APWS - Astrophotography Workshop 21st February @ the Briars 1:00 pm  SD - Solar Day on 21st March @ the Briars 1:00 pm</p>	<p>Autumn Equinox - March 20  Winter Solstice - June 21  Spring Equinox - September 23  Summer Solstice - December 22</p>	<p>Working Bees will be Noted in the calendar in Scorpius News Letter</p> <p><b>VASTROC</b> - 18th to 19th April BDAS - Bendigo District Astronomical Society</p> <p><b>South Pacific Star Party</b> 14th to 17th May @ Ilford NSW <a href="http://www.asnsw.com/spsp">www.asnsw.com/spsp</a></p>
	<p>○ Full Moon   ● New Moon</p> <p><b>LEGEND</b>  <b>Bold Under lined Days</b>  School Holidays  MPAS Calendar 2015 - by Greg Walton</p>	

# Mornington Peninsula Astronomical Society - 2015 Calendar

# ASTRO NEWS

By Peter Lowe

## Microbe Friendly Martian Lake.

The Martian Curiosity rover has found remnants of an ancient freshwater lake that may have supported tiny life forms. There is no water left today, but drill tests and a chemical analysis of its fine-grained rocks suggest microbial life could have thrived there billions of years ago. The rocks contain signs of carbon, hydrogen, oxygen, nitrogen and sulphur, and could provide perfect conditions for simple microbial life. Small bacterial life forms known as chemolithoautotrophs thrive under similar conditions on Earth typically in caves and under the sea in hydrothermal vents. Curiosity has drilled into the mudstone and sandstone rocks and found clay minerals, suggesting an interaction with water. Surprisingly these rocks are quite young aged between 3.5 to 3.6 billion years old. This period coincides with the oldest records on Earth for which we have a microfossil record. Researchers have already found evidence of water elsewhere on Mars' surface, and the work of past orbiters has strongly suggested Mars had lakes at some point. The unmanned, six-wheeled Curiosity rover landed at the Gale Crater in August 2012 specifically because it was believed to contain many geological layers and likely held water. These latest findings provide the strongest evidence yet that Mars could have been habitable enough for life to establish and survive. Curiosity's mission is to search for geologic conditions that might have been right for life to exist, but it does not contain tools that can actually detect life. The next step is to analyze specimens from rocks scattered on the crater's surface for further evidence of habitable environments. The search for life will move forward at the next generation of rovers such as the ESA ExoMars explorer in 2018 and another NASA vehicle in 2020.

## Lunar Gardens

Manned space flight missions so far have been a race against time to complete the mission before the essential life supporting resources ran out. Until we learn to live sustainably in space really long term missions are impossible.

Dutch researchers have produced a test garden of 840 pots planted with 4,200 seeds using imitation Mars and moon sand. The imitation soil, supplied by NASA is Hawaiian volcanic soil and sand from Arizona. Researchers investigated the possibility of growing different types of plants in the test soil. They did a 50-day experiment using 14 plant species. Surprisingly the Martian soil supported plant growth well. All plants germinated. Tomato plants grew well; carrot plants even had small carrots and the cress formed seeds. Seeds of agricultural crops such as rye and cress germinated best. The lunar soil did far less well. Lunar sand contains aluminum, which is poisonous to plants plus the soil pH (acidity) is too high. In lunar soil the germination rate was significantly less and the growth of all species was much worse. Many germinated plants died before the end of the experiment. In addition, the crops did relatively poorly. It would certainly be possible to grow plants on the moon however you need to manipulate the sand by planting specific plants absorbing the aluminum from the soil plus adding acid to lower the pH.

NASA is taking a step further planning to grow plants on the moon no later than 2015. A small group of scientists plan to develop small specially designed containers in which the plants will be encased, complete with sensors and cameras that will be relaying information down to Earth. The dream is to be able to freely live on the moon for decades - instead of just hours. The idea is to develop a very simple sealed growth chamber that can support germination over a 5-10 day period on the moon with filter paper used to feed dissolved nutrients to the plant. The only downside is getting to the Moon, which is planned to use commercial space travel companies such as Space-X.

## Comet ISON hits the Earth.

January may be a period of increased meteor activity as the Earth passes through the remains of the recently disintegrated comet ISON. The disintegrated comet has left an enhanced dust and gas train in its wake. Another more likely phenomenon may be noctilucent clouds formed as the finer dust enters the upper atmosphere. Apart from a light show, this provides a perfect opportunity to collect dust particles from a recently created dust train. Very fine dust particles do not burn up like meteors and will eventually settle to the surface. A dust collection program has been started in Antarctica, the cleanest place on Earth.

## Venus Mountains create Waves.

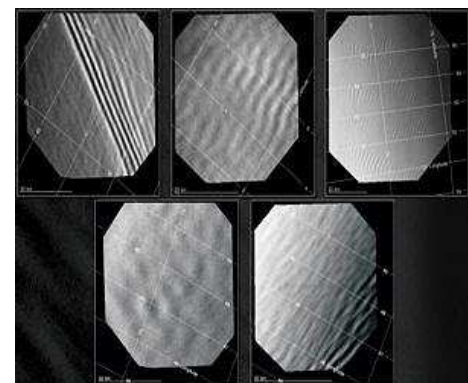
High-level clouds blanket the planet Venus. At visible wavelengths, individual cloud features are difficult to see, but observations made from ESA's Venus Express orbiter have revealed many small-scale wave train features. The waves are mostly found at high northern latitudes, particularly above Ishtar Terra, a continent-sized region containing the highest mountains on the planet.

Venus is a world of contrasts. On the surface, the temperature reaches 450°C and winds blow at a sluggish 3-4 km/hr yet at the cloud tops, temperatures are a frigid -70°C and wind speeds reach 300-400 km/hr, much faster than hurricanes on Earth.

Astronomers expected there would be little connection between the baking lower atmosphere and the upper atmosphere, some 60-70 km above. However, spacecraft observations over several decades indicate that the relationship resembles a dense ocean-like lower atmosphere, topped by an opaque cloud layer. Ripples and air currents visible at the cloud tops provide hints about processes and influences far below.

Early evidence of atmospheric waves being generated by air flowing over major topographic features came in 1985, when two Soviet Vega balloons flying at an altitude of 54 km experienced a bumpy ride above the southern uplands of Aphrodite Terra. Almost three decades later, observations from the Venus Express provided new evidence confirming the upward propagation of atmospheric waves from the surface to the main cloud deck and above.

These so-called gravity waves can only exist in a stably stratified atmosphere. They can be triggered by convection or by horizontal flows passing over surface obstacles. On Earth, gravity waves frequently reveal their presence through cloud formations on the lee side of mountains. They often take the form of wave trains - a series of waves traveling in the same direction and spaced at regular intervals.





Venusian gravity waves are more common at latitudes 60-75 degrees, with the greatest activity on the lee side of mountains in the northern hemisphere and are at least partly associated with atmospheric flow over Ishtar Terra, an upland region.

Four wave types have been identified - long, medium, short and irregular. Long waves appeared as narrow straight features extending more than a few hundreds of kilometres and with wavelengths (separation of crests) between 7 and 17 km. Medium type waves exhibited irregular wave fronts extending for more than 100 km and with wavelengths of 8 - 21 km. Short waves had a width of several tens of kilometres and extended to a few hundreds of kilometres, with wavelengths of 3 -16 km. Irregular wave fields appeared to be the result of wave interference.

Understanding the mechanisms of surface influence on atmospheric processes is crucial for understanding the maintenance of the remarkably rapid circulation of the atmosphere at Venus' cloud tops.

### **China's Lunar Lander explores the Moon and Stars.**

For the first time since the early Apollo missions a UV observatory has been operating from the lunar surface. Lunar Lander Chang'e-3 and rover "Yutu" of China's lunar probe mission have collected a large amount of space observation and moon exploration data. The panoramic camera and infrared spectrograph have sent back clear images of the moon's surface and data collected by a particle X-ray device has helped scientists identify 11 types of chemical elements including magnesium, aluminum, calcium and yttrium. A moon-based optical telescope on the lander has been observing light from many celestial objects at near ultraviolet wavelengths, and has been monitoring some 23 stars.

Meanwhile the Yutu rover has surveyed the moon's surface and collected two sets of data about the structure of lunar soil beneath the surface. Yutu will survey the moon's geological structure and surface substances for at least another three months, while the lander will conduct in-situ exploration at the landing site for one year.

### **Pluto In Sight**

NASA's New Horizons spacecraft traveling at nearly two million kilometers a day is nearing its first destination: the Plutonian system. When it reaches Pluto in 2015 it will have been traveling for near ten years. Later this year an intensive campaign of photography by the Long Range Reconnaissance Imager (LORRI) will help mission controllers pinpoint Pluto's location. LORRI will photograph the planet against known background star fields and will be used for final course corrections. The flyby occurs in July 2015 and will be the first time a new planet (or at least a dwarf planet) has been explored since the Voyager missions.

### **Giant Planetary System Found**

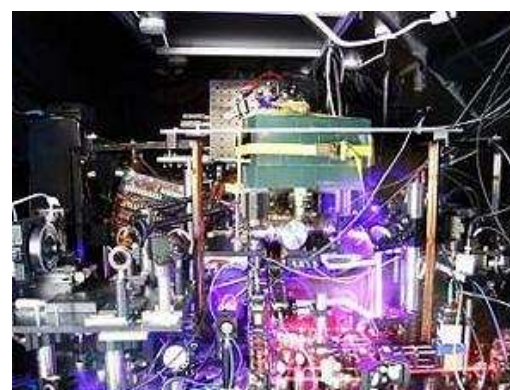
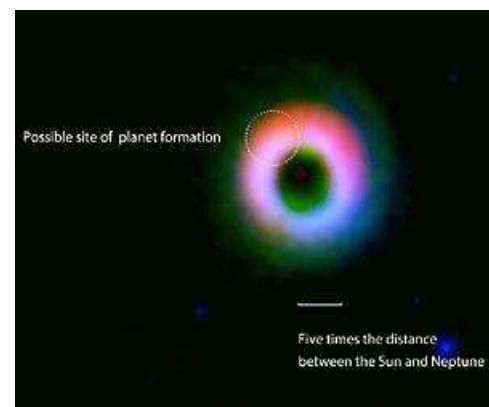
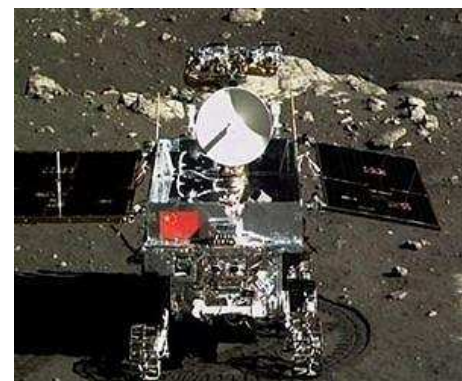
Using the Atacama Large Millimeter/submillimeter Array (ALMA) a team of Japanese astronomers has obtained firm evidence of the formation of a giant planetary system around a young star. This result gives us a clue to the origin of a wide variety of planetary systems. The star named HD142527 in the constellation Lupus (the Wolf) shows that cosmic dust is circling the star as an asymmetric ring. By measuring the dust density, astronomers found it is highly possible that planets are now being formed in that region. This region is far from the central star, about 5 times larger than the distance between the Sun and the Neptune. This result is surprising given it was thought planets formed close to the star. This is the first firm evidence of planet formation so far from the central star in a protoplanetary disk and will no doubt cause a re-think in planetary formation theories.

### **China's Tiangong Lives On.**

The last crew on board China's Tiangong 1 space laboratory left the station in June of last year. It was fully expected the station would be de-orbited having completed all its main tasks. Tiangong 1 was launched in September 2011. Three crewed Shenzhou spacecraft visited it - Shenzhou 8, 9 and 10. The crews practiced various space procedures in preparation for a larger station eventually leading to China's fully-fledged space station. Originally intended to last two years it was expected to be de-orbited in September last year but this has not happened. The Chinese space agency has not released any plans for the station but its status is basically healthy. If left alone it will eventually start clipping the upper atmosphere requiring plans for a final de-orbit. What will happen only the Chinese controllers know.

### **Super Clock Sets New Record**

An experimental atomic clock based on strontium atoms held in a lattice of laser light has become the world's most precise and stable atomic clock. The clock is in a laboratory at JILA, a joint institute of NIST and the University of Colorado Boulder. The JILA strontium lattice clock is about 50 percent more precise than the previous record holder the NIST's quantum logic clock. Precision refers to how closely the clock approaches the true resonant frequency at which its reference atoms oscillate between two electronic energy levels. The new strontium clock is so precise it would neither gain nor lose one second in about 5 billion years, if it could operate that long. This time period is longer than the age of the Earth, an estimated 4.5 billion years old.





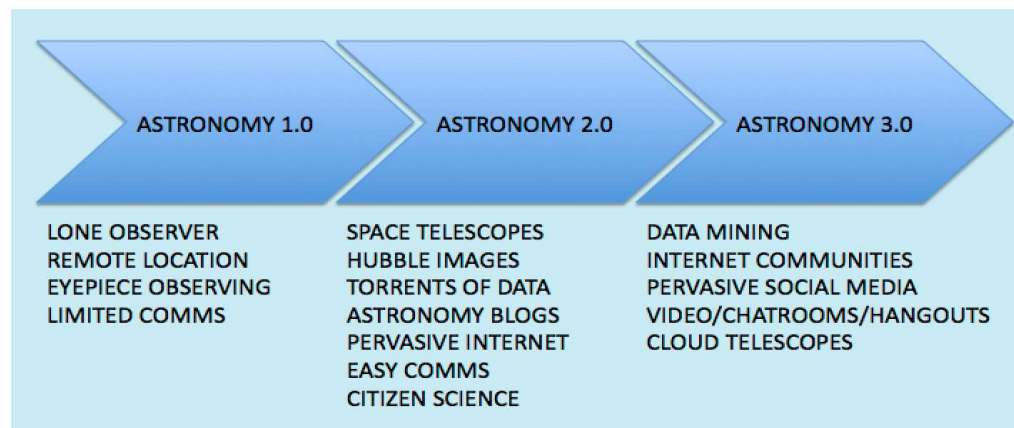
## NACAA REPORTS - THE FUTURE OF AMATEUR ASTRONOMY.

Peter Lowe

Every two years amateur astronomers from around Australia gather at a Convention known as a NACAA. The latest convention was in Melbourne over the Easter weekend. This is an opportunity to meet Australia's more advanced amateurs and touch base with the spectrum of amateur astronomy activities today plus of course to reconnect with old friends. This is a discussion on future directions for amateur astronomy in Australia.

A revolution is currently growing in amateur astronomy. Like all revolutions it hasn't happened overnight. Progress is steady and the momentum is growing. It still has a way to go. In astronomy as in all endeavours progress is slow but constant with sudden game-changing events spurring the revolution on. These paradigm shifts are "enabling developments" that set new opportunities for progress. Computer based electronics has revolutionized telescope design and control, the Internet has revolutionized communications and data storage and today amateur astronomy is progressing on the global front with automated, remote telescopes and cameras. These instruments combined with the enormous, gigantic, dare I say "ginormous" amounts of data and images available for free online from every major observatory and most space missions has opened up literally limitless opportunities for amateur research and co-operation.

The oldest form of amateur astronomy, known today as **ASTRONOMY 1.0**, is still practised and appreciated. A highly enjoyable activity, it will always be an essential part of amateur pursuits. Basically it started with the lone observer on a hilltop at a remote location quietly observing favourite objects or searching the skies. The archetypal observer is the great Mr. Bill Bradfield, the discoverer of numerous comets this way with eyeballs on eyepieces. There was limited or no communications. Discoveries had to wait until he got home to report. It was very much a solitary activity. Once society facilities developed, this activity evolved into group observing events such as society viewing nights or star-parties. These days, star parties are a regular astronomical tourist activity around Australia. There is nothing better than to get out into the countryside and enjoy the celestial sights with friends and a favourite telescope. **ASTRONOMY 1.0** is also the first learning phase for every new or upcoming amateur astronomer. It's when you learn the basic skills of amateur astronomy and establish your connections into the amateur scene. An individual's love of astronomy often starts here.



**ASTRONOMY 2.0** has been a complicated development stage basically occurring over the last forty years. During this interval we saw the rise of the computers both in capacity and communication capability. Telescopes have become highly automated and relatively cheap. Who would buy a telescope today without an automated drive and online object database? I have often argued (friendly argument of course) with members over the relative merits of good old fashion viewing against automated object surfing. During this 40 year period we've seen the rise of the Internet, mobile phones, online databases and of course Hubble Images. Voyager, Galileo, Cassini, Apollo, Hubble, Mars Rovers and numerous lesser-known missions, have captured the public eye. Professional observatories across the world opened up observational databases to public access and Citizen Science took hold. The first online science project was SETI@online. Thousands of people around the world used their computer idle time to search radio observations looking for a SETI signal. This was like putting a super-computer online. Today there are thousands of citizen science projects underway. And of course one of the greatest break-throughs in the revolution was "email". In its various forms email, blogs, chatlines have opened up world communications. It wasn't long before someone started putting it all this together.



ASTRONOMY 3.0 is the latest manifestation of this revolution. Internet communities, social media (in particular Facebook), video databases, Chat-rooms, Hangouts, virtual internet communities and special interest groups have all exploded onto the scene. Bringing all this together with cloud computing and we now have “cloud telescopes”. It is now possible for anyone on the planet to control of automated array of telescopes and cameras to take observational photographs of astronomical objects. Schools in Australia & overseas are taking advantage of this online instrument array to undertake schools projects. Furthermore there are arrays of automated camera systems taking continuous photographs of the sky and posting these pictures into online image databases. Amateurs can search the image databases collecting data on comets, asteroids, planets, galaxy searches; just about any project you can imagine. Data mining as it's become known is proving an exciting and booming activity in the educational and citizen science scene. Amateur astronomy is changing dramatically and the ASTRONOMY 3.0 era looks to be a major step forward in the way amateurs approach the hobby. It's no longer necessary to travel for hours to a dark sky site to set up equipment in a cold, damp field only to have clouds block the views and discover you left your eyepieces home. All you need to do is visit telescopes from the warm comfort of home or the astronomy society clubroom. The next generation of amateur astronomers will certainly have a different outlook on the hobby however I hope they continue take the opportunity to get out under the stars and soak up the views the old way.

### **Automated Amateur Camera Array in Spain**





# MPAS has their very own rock star.

MPAS member Trevor Hand presents his talks to the public & members, at the MPAS Briars site on the 1st Friday of the month. Trevor puts an enormous amount of work into his presentations, making all sorts of interesting models, including making the whole solar system in paper mashie with most of the planets Moons. He has also collected many meteorites & Dinosaur fossils which he brings to his talks. Yes Trevor does have a very fine telescope which he regularly uses at public event. Special thanks to Trevor, from all of MPAS.




































If you can't get enough of Trevor you can find him on YouTube & Vimeo.

**MPAS on Vimeo** - MPAS Interview with Trevor Hand & Peter Skilton  
The Cranbourne Meteorite <https://vimeo.com/82488164>

Astronomy Benalla ABC Radio Meteorite Interview - YouTube This video contains a radio interview on ABC Goulburn Murray on the morning breakfast show of Wednesday ...  
[www.youtube.com/watch?v=uJqSyzq7Eo](http://www.youtube.com/watch?v=uJqSyzq7Eo)

Trevor on you tube Link <http://www.youtube.com/user/TrevorOneOfOne>



 <b>Basketball.avi</b> 8 views · 2 years ago	 <b>20111202NightSkyPart5</b> No views · 3 years ago	 <b>20111202NightSkyPart4</b> No views · 3 years ago	 <b>20111202NightSkyPart3</b> No views · 3 years ago	 <b>20111202NightSkyPart2</b> No views · 3 years ago	 <b>20111202NightSkyPart1.wmv</b> 4 views · 3 years ago
 <b>MPAS Briars Telescopes November 2011, Part 5 of 5</b> 3 views · 3 years ago	 <b>MPAS Briars Telescopes November 2011, Part 4 of 5</b> No views · 3 years ago	 <b>MPAS Briars Telescopes November 2011, Part 3 of 5</b> 2 views · 3 years ago	 <b>MPAS Briars Telescopes November 2011, Part 2 of 5</b> 8 views · 3 years ago	 <b>MPAS Briars Telescopes November 2011, Part 1 of 5</b> 11 views · 3 years ago	 <b>BendigoPlanetsPart5</b> 6 views · 3 years ago
 <b>BendigoPlanetsPart4</b> 7 views · 3 years ago	 <b>BendigoPlanetsPart3</b> 3 views · 3 years ago	 <b>BendigoPlanetsPart2</b> 12 views · 3 years ago	 <b>BendigoPlanetsPart1.wmv</b> 26 views · 3 years ago	 <b>MpasBriars2011OctoberSolarSystemBitsPart5.wmv</b> No views · 3 years ago	 <b>MpasBriars2011OctoberSolarSystemBitsPart4.wmv</b> No views · 3 years ago
 <b>MpasBriars2011OctoberSolarSystemBitsPart3.wmv</b> No views · 3 years ago	 <b>MpasBriars2011OctoberSolarSystemBitsPart2.wmv</b> No views · 3 years ago	 <b>MpasBriars2011OctoberSolarSystemBitsPart1.wmv</b> 3 views · 3 years ago	 <b>MPAS June 2011 Top 12 Moons part 5 of 5</b> 4 views · 3 years ago	 <b>MPAS June 2011 Top 12 Moons part 4 of 5</b> 1 view · 3 years ago	 <b>MPAS June 2011 Top 12 Moons part 3 of 5</b> 4 views · 3 years ago
 <b>MPAS June 2011 Top 12 Moons part 2 of 5</b> 6 views · 3 years ago	 <b>MPAS June 2011 Top 12 Moons part 1 of 5</b> 8 views · 3 years ago	 <b>MPAS April 2011 Meteorites part 5 of 5</b> 19 views · 3 years ago	 <b>MPAS April 2011 Meteorites part 4 of 5</b> 28 views · 3 years ago	 <b>MPAS April 2011 Meteorites part 3 of 5</b> 43 views · 3 years ago	 <b>MPAS April 2011 Meteorites part 2 of 5</b> 15 views · 3 years ago
 <b>MPAS April 2011 Meteorites part 1 of 5</b> 44 views · 3 years ago	 <b>Astronomy Benalla ABC Radio Meteorite Interview</b> 147 views · 3 years ago				



There is an enormous amount of time lapse videos on the web, here are some I have found. *By Greg Walton*

### Greg Walton - Time Lapse videos Links

Caliquel Lagoon <https://vimeo.com/104677786>  
 Platypus Bush Camp <https://vimeo.com/103576891>  
 Saturn and the Moon <https://vimeo.com/99312692>  
 Messier star party 2014 <https://vimeo.com/98616990>  
 Sky Transformer <https://vimeo.com/105418574>  
 SPSP 2013 <https://vimeo.com/112986079>  
 SPSP 2014 <https://vimeo.com/97090994>  
 Transit of Venus <https://vimeo.com/95634100>  
 Monash at LMDSS 2014 <https://vimeo.com/108736453>

VicSouth 2011 <https://vimeo.com/95631262>  
 VicSouth 2012 <https://vimeo.com/109198236>  
 VicSouth 2013 <https://vimeo.com/81358189>  
 VicSouth 2014 <https://vimeo.com/111174466>  
 Briars Confusion <https://vimeo.com/106149365>  
 ASV 90 years <https://vimeo.com/106891660>  
 Undara <https://vimeo.com/105416508>  
 Galactic Centre Star Party <https://vimeo.com/107872066>  
 Sky Glow from LMDSS <https://vimeo.com/95369540>  
 Aurora 2012 <https://vimeo.com/112437919>



### Alex Cherney - Time Lapse videos Links

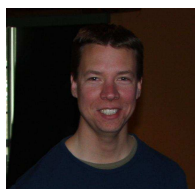
Occultation of Saturn by the Moon (August 4, 2014) <https://vimeo.com/102933610>  
 Occultation of Saturn by the Moon (May 14, 2014) <https://vimeo.com/95528617>  
 Australia Telescope Compact Array Time-Lapse <https://vimeo.com/73104737>  
 Comets Lemmon and PanSTARRS <https://vimeo.com/59571509>  
 Total Solar Eclipse, November 14th 2012 <https://vimeo.com/54017986>  
 The Observatories <https://vimeo.com/103795451>  
 Tekapo Starlight <https://vimeo.com/32815706>  
 ASKAP Radio Telescope <https://vimeo.com/50121809>  
 Epic Stargaze <https://vimeo.com/28487411>

Liquid Light Show <https://vimeo.com/57311737>  
 Red Aurora Australis <https://vimeo.com/35630244>  
 Melbourne at Night <https://vimeo.com/26090903>



### Phil Hart- Time Lapse videos Links

Six days of Comet Lovejoy <https://vimeo.com/34639569>  
 The Yukon's Northern Lights <https://vimeo.com/67365726>  
 Valentine's Aurora (APA) <https://vimeo.com/66882328>  
 Valentine's Aurora <https://vimeo.com/52612008>  
 LMDSS Observatory Raising <https://vimeo.com/29814897>  
 The Venus and Jupiter Show <https://vimeo.com/40613573>  
 Comet C/2013 A1 (Siding Spring) and 47 Tucanae <https://vimeo.com/104882859>  
 First Nights with the eMotimo TB3 <https://vimeo.com/79655491>



### Randy Halverson dakotalapse.com

Temporal Distortion <https://vimeo.com/36684976>  
 Plains Milky Way <https://vimeo.com/24551969>  
 Tempest Milky Way <https://vimeo.com/28040685>  
 Huelux <https://vimeo.com/85134959>  
 Horizons <https://vimeo.com/67621971>  
 Sub Zero <https://vimeo.com/20062206>

### Jason Hines <http://jasonhines.net/>

Milky Way Time lapse  
<https://vimeo.com/73437656>

### Henry Jun Wah Lee / Evosia [evosia.com](http://evosia.com)

Legend <https://vimeo.com/47015825>  
 Eye of the Storm 4K <https://vimeo.com/90536368>  
 Joshua Tree Under the Milky Way  
<https://vimeo.com/90536368>  
 Fathom 4K: A Winter's Journey into Yellowstone  
<https://vimeo.com/84171958>  
 Sprites, Gravity Waves and Airglow  
<https://vimeo.com/105145048>  
 "Orion" - motion controlled night time lapse  
<https://vimeo.com/22700617>

### Add for Motion controls

dynamic perception <https://vimeo.com/93078265>

### Land scapes Time Lapse videos Links

ICELANDIA - Time-lapse Visuals from 64° North  
<https://vimeo.com/49643332>  
 Mountains in Motion: March 2012 Aurora  
<https://vimeo.com/38472756>  
 Mauna Lapse: From Sea to Summit  
<https://vimeo.com/29117132>  
 Canadian Rockies Time-lapse Montage  
<https://vimeo.com/15360924>  
 Eye of the Beholder  
<https://vimeo.com/72523738>

### Melbourne Time Lapse videos Links

Mount Macedon Milky Way Time lapse <https://vimeo.com/20503724>  
 Night Time Lapse at Mt Macedon in Victoria <https://vimeo.com/12169767>  
 Melbourne by Night <https://vimeo.com/45013650>  
 Melbourne Nights- Time lapse <https://vimeo.com/60302304>  
 Mini Melbourne <https://vimeo.com/30468423>  
 Miniature Melbourne <https://vimeo.com/64783605>  
 New Light <https://vimeo.com/101041083>  
 Victoria in HDR: Geelong & Surf Coast Time lapse <https://vimeo.com/60030858>  
 ars electronica: tesla orchestra <https://vimeo.com/28903714>

### Sydney Time Lapse videos Links - Toy Boats <https://vimeo.com/53247454>

### Aurora Time Lapse videos Links

Norway time lapse <https://vimeo.com/channels/staffpicks/107469289>  
 The mountain <https://vimeo.com/22439234>  
 The Aurora <https://vimeo.com/21294655>  
 The Arctic Light <https://vimeo.com/24456787>  
 Midnight Sun Iceland <https://vimeo.com/30581015>  
 Into the Light <https://vimeo.com/45887091>  
 Northern Lights Time lapses Iceland 2013 <https://vimeo.com/84564623>  
 Aurora & Bioluminescence from Gerroa NSW <https://vimeo.com/104612435>

### Comets Time Lapse videos Links

Animation of Comet C/2014 E2 (Jacques) <https://vimeo.com/103024545>  
 Comet C2013 A1 Siding Spring <https://vimeo.com/104208870>

### Other Vimeo Link's

Russian girl Nastya wants to fly to Mars <https://vimeo.com/100449941>  
 President Obama Visits Stonehenge <https://vimeo.com/105438883>  
 NOVA-Secrets of Stonehenge <https://vimeo.com/104048171>

## Comet C/2012 K1 PanSTARRS from Mentone

Comets in 2014 have been rather small and I could not get a decent image of them with my 80mm f/6 refractor. So when my friend was coming over from the USA and Celestron had their northern summer sale, the temptation became too strong and I got an 8" Celestron EdgeHD OTA.

The telescope has a "coma-free" design with 2 lenses mounted inside the baffle tube, which work like a field flattener. I am quite happy with how telescope performs and with new EdgeHD compatible 0.7x reducer it becomes a compact 1400mm telescope with a reasonable focal ratio of f/7. You can see the telescope mounted on IOPtron ZEQ-25 mount, guided with 50mm Orion scope and QHY-5LII mono CMOS camera. The main camera is Sony a6000 (not modified).

To test the telescope on October 22<sup>nd</sup>, I chose comet C/2012 K1 PanSTARRS, which at ~8.5 magnitude would be bright enough to see from our back yard in Mentone suffering from light pollution. The Sky Quality Meter (SQM) reading that night was 19.2 mag/arcsec<sup>2</sup> in the direction of the comet - South-West and 70° elevation (not too bad considering where we are).

I took 77 images and after stacking and stretching in PixInsight I was amazed to see two tails of the comet and some nice green colour – it was nowhere to be found in a single exposure. If I knew that the comet was so large I would have framed it differently to include more of the tail!



I included two images side-by-side that show a single 30-second exposure taken at ISO 1600 on the left and a stack of 77 exposures in "comet" mode in PixInsight on the right. The result of stacking was rather a pleasant surprise considering it was photographed from Mentone. I think I will be doing more of such "experiments" in the future. On the 18<sup>th</sup> of December this comet will be 1° NW from NGC 55, presenting an interesting photo opportunity, in case we get some clear skies.



Alex Cherney



## Checking the sky before you set off.

By Greg Walton

These days there are many web cameras at many locations, which you can view from your computer. If you wish to go aurora hunting at Flinders and would like to see if the sky is clear their, you can usually find a web cam near by. Below right are some of what you can see. The goandroam web site worked best, also Snarl Melbourne Vic-roads webcams worked well.

Just click on the link below  
Than click on nearby locations

World wide Webcams

<http://www.goandroam.com/>

Webcams Australia

[http://www.goandroam.com/webcams/map\\_oceania](http://www.goandroam.com/webcams/map_oceania)

Melbourne webcams

<http://www.goandroam.com/webcams/australia/melbourne/>

Vic-roads Snarl Melbourne

<http://victoria.snarl.com.au/cams>

ASV's LMDSS Sky cam at Heathcote

which also give you a sky Planisphere

<http://www.lmro.org.au/sky-camera/>

The screenshot shows the goandroam website interface. At the top, there's a navigation bar with 'home', 'webcam maps', 'categories', 'top 10', 'USA cams', 'add a webcam', and 'myCams'. Below that, the breadcrumb trail reads 'Home » Oceania » Australia » Melbourne Webcams'. The main heading is 'Melbourne Webcams' with social media icons for Facebook, Twitter, Email, RSS, and a plus sign. A list of nearby locations is provided: 'bendigo, ballarat, geelong, bendigo, mornington peninsula, yarra valley, great ocean road, phillip island'.

nearby locations: [phillip island](#), [melbourne](#), [yarra valley](#), [geelong](#)

A grid of nine webcam thumbnails. Each thumbnail shows a different view: MYC WeatherCam System (boats in a harbor), Frankston beach cam (beach at sunset), Rye Front Beach (ocean view), Sorrento Cam (ocean view), Gunnamatta Surf Cam (surfing), Flinders Surfcam (ocean view), and others. Each thumbnail has a label and a '+ add to myCams' button.



The screenshot shows the Snarl Melbourne Traffic website. It has a navigation bar with 'INCIDENTS', 'SUBURBS', 'LIVE TRAFFIC MAP', 'LIVE TRAFFIC CAMS', 'LIVE BUSHFIRE MAPS', 'QUEENSLAND', and 'NSW'. The main content area displays 'MELBOURNE AND VICTORIA TRAFFIC CAMERAS' with a list of 41 cameras. A grid of camera feeds is shown, including: 'Beaconsfield Pde / Kerferd Rd', 'Princes Hwy at Wattletree Rd', 'Eastern Fwy / Bulleen Rd', 'Nepean Hwy / North Rd', 'WBR / Hume Hwy', and 'Western Hwy / Ballarat Rd at Western Ring Rd'. Each feed includes a direction and suburb source.

The screenshot shows the Leon Mow Radio Observatory website. It features a 'Sky Camera' section with a live image of the sky and a 'Sky Planisphere' section with a star chart. The website also includes a navigation bar, a 'New Posts' section, and a 'Server Status' section.

At the ASV's LMDSS Sky cam you can also get the weather & solar activity.

LMDSS weather

<http://www.lmro.org.au/weather/>

Solar activity

<http://www.lmro.org.au/solar-observatory/>





## MPAS at Vic-South 2014 Star Party in the Little Desert Nation Park, *by Greg Walton*

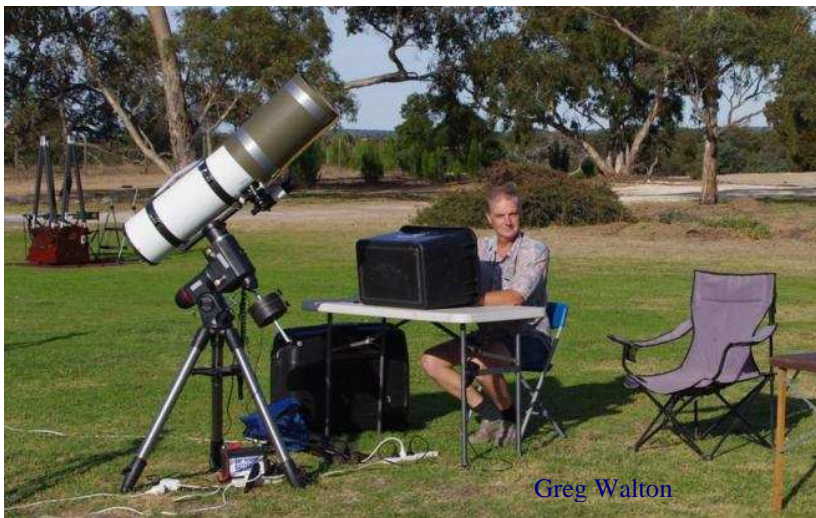
This event is run jointly by the astronomical society of Victoria and the astronomical society of South Australia. Normally it take about 5 hours to drive to the Little desert from the Mornington peninsula. Pia and I stopped of at Horsham for the night, then the next day it was on to our favourite junk shop at Dimboola, were we seen that the old Dimboola pub had been demolished. We arrived at the Little Desert Nature Lodge about mid day to setup our camp, then we move the car to the viewing field to setup the telescopes and time lapse cameras. There was already a large number of scopes setup, I counted 20 EQ6 & EQ5H mounts, just shows you how good and popular they are. This first night was perfectly clear all night, with only a heavy dew moving in around 4am to mess things up. I was happy to be able to image 5 more Caldwell objects with my 8 inch Newtonian telescope and also imaged M31 and M33 with my 300mm Lens on the Polaris tracker.



The second day was the usual astronomy talks and displays. I was roped in to do a 30 minutes talk on my time lapse photography. Also Gaven set up his solar telescopes and impressed everyone with amazing views of large prominence's on the sun. Then in the night it started clear and windy but by midnight patchy clouds started rolling in, most continue on till 3am. I spent 3 hours imaging comet siding springs with my 8 inch Newtonian telescope, to see if I could detected any movement when I make it into a time lapse video. Also capture a bright meteor burning up with a orange flame shooting out the side, with my time lapse cameras & 10mm lens.







Greg Walton



Dr Russel Cockman

The third day we decided to head north to the small town of Rainbow, where we had found a junk shop. Pia was very happy when she picked up some more old Danish plates and candle stick holders. The third night was a write off, as black clouds moved in on night fall, a spectacular lightning storm lit up the sky for many hours. As we were in a tent there was nothing to muffle the sound of the thunder, as the lightning hit the ground all around us. Then around midnight the winds got up to 80Km per hour, putting our tent to the test, we did not get much sleep. In the morning we got up early and packed up the scopes before the rain started again, then pull down the camp and hit the road back to Melbourne town. The event started so well and then slowly went down hill with cold, wet and windy, overall I purpose it was a success. See the time lapse video at Greg Walton on Vimeo link. VicSouth 2014 <https://vimeo.com/111174466>





## Border Stargaze 2014 *by Dave Rolfe*

The annual border Stargaze was ran again over the October new moon weekend after a year off and again hosted by the Astronomical Society of Albury Wodonga. This year the event was moved to a later in the year which meant no freezer suits but shorts and thongs all night long. The weather was generally kind this year with fair seeing most nights (except for a few passing clouds on one night). Numbers were down this year to about 70 or so (about half the normal) maybe in part due to missing last year as well as well as a date clash with the VicSouth event. The event is well suited to families as it is held at the Great Aussie Holiday Park which has ample activities for younguns and oldens alike with a pool, water park, playground, archery, canoes and animal feeding to name a few.

The BSG has solar viewing and lectures running during the day and a debate or quiz in the early evening before dark sets in. This year's quiz was a Dr Who themed and was a lot of fun as usual. The event is scheduled for the same time next year, I will keep everyone posted.





## *Dave Rolfe Gallery*

Below are some of Dave's recent very high quality images, keep up the good work

On this page - Top is M33 spiral galaxy & at the Bottom B33 the horse head nebula with the flame nebula

Also on this page at right is Steve setting up his telescope at LMDSS, a man on a mission, all looks too hard?

On the Next page - Top is the M20 Trifid nebula with M8 the Lagoon nebula & at the Bottom M45 Pleiades nebula



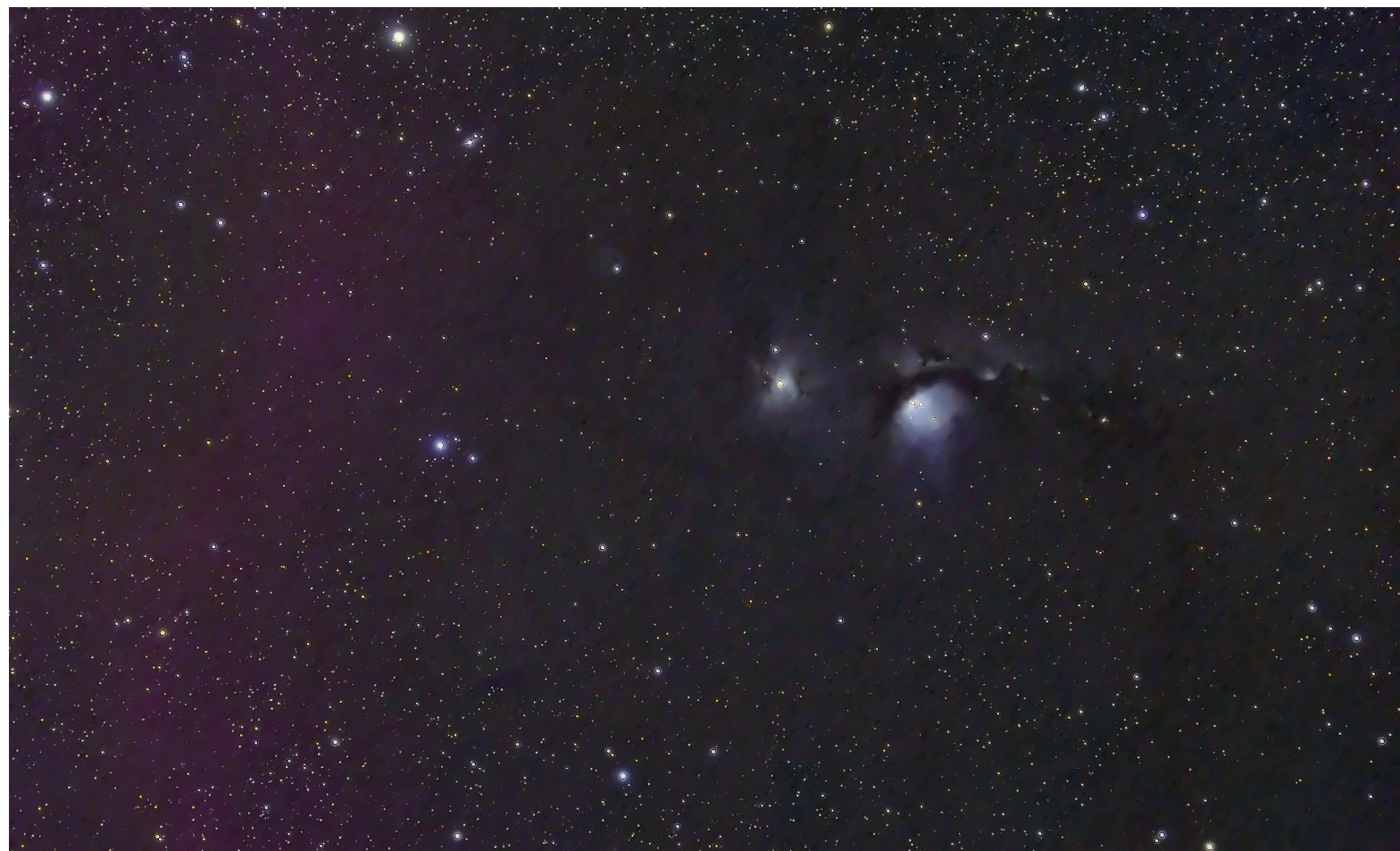






## *Paul Albers Gallery*

Here are two images taken at the LMDSS on Grand final day in September 2014. 18 x 5 minute subs @ iso800 + Master Dark and Flats. Taken with Pentax K-x with the ED80, guiding imaging with the NEq6pro, both images processed with deep sky stacker and PS CS3. Top M78 & Bottom NGC 6357





SOCIETY INFORMATION



Peter Lowe



Dave Rolfe



Peter Skilton



Jamie Pole



Trevor Hand



Paul Albers



Paula Ritchens



Clemens Unger



Greg Walton - Please send your articles & photos to [gwmpas@gmail.com](mailto:gwmpas@gmail.com)

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

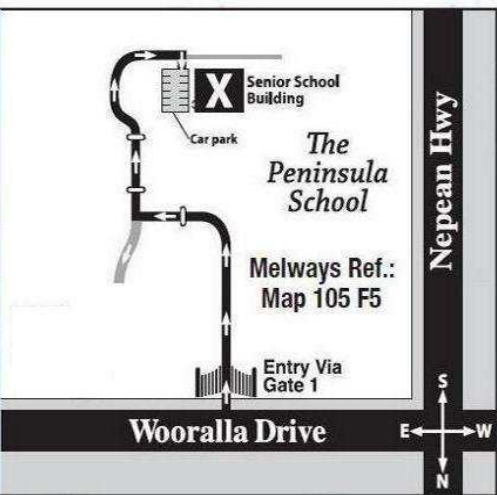
**President:** Peter Lowe  
**Vice President:** David Rolfe  
**Committee:** Trevor Hand, Fiona Murray, Paul Albers, Paula Ritchens, Clemens Unger.  
**Phone Contact:** Peter Skilton - 0419 253 252

**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](mailto: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](mailto: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.

**For additional details:**  
**Internet:** <http://www.mpas.asn.au>  
**email:** [welcome@mpas.asn.au](mailto:welcome@mpas.asn.au)  
**Phone:** 0419 253 252  
**Mail:** P.O. Box 596, Frankston 3199, Victoria, Australia.

