



SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

Volume XXI, No 5 (August /October)

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



SCORPIUS

THE JOURNAL OF THE
MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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 © 2011, Mornington Peninsula Astronomical Society.

July / 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 School Holidays start	2 Carbon Tax starts	3	4 Full Moon	5 Venus & Jupiter close	6 Public Night 8pm	7
8	9	10	11 Last Quarter	12	13	14
15 School Holidays End	16	17	18 General Meeting 8pm	19 New Moon	20 Mercury close to moon	21 Members Night BBQ 6pm
22	23	24	25 Committee meeting 8pm	26 First Quarter	27	28
29	30	31				

Monthly Events & High Lights.

Public night 6th 8pm start - Members Night BBQ 6pm at the Briars 21st - General Meeting at 8pm 18th
 Evening Mercury close to Beehive 2nd to 4th - Morning Venus close to Aldebaran 1st to 9th Venus close to Jupiter 5th
 Evening Moon, Mars, Saturn & Spica close 25th - Evening Moon and Mercury close 20th - **Watch out for Auroras.**

August / 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Full Moon	3 Public Night 8pm	4
5	6	7	8	9	10 Last Quarter	11
12 Nat Science Week	13 Nat Science Week	14 Nat Science Week	15 General Meeting 8pm Border Stargaze	16 Mars & Saturn Nat Sci Week Border Stargaze	17 Public Night New Moon Nat Sci Week Border Stargaze	18 Members Night BBQ 6pm Border Stargaze
19	20	21	22 Committee meeting 8pm	23	24 First Quarter	25 Astrophotography work shop at BSA Ballarat Greg
26	27	28	29	30	31 Full Moon Blue Moon	

Monthly Events & High Lights.

Public night 3rd 8pm start - National Science week 12th to 18th extra public night 17th - Blue moon 31st
 General Meeting at 8pm 15th - Members Night BBQ 6pm at the Briars 18th - **Watch out for Auroras.**
 Evening Mars, Spica & Saturn close 7pm 14th 16th and the Moon joins them on 22nd
 Dawn Venus close to the Moon 14th - Morning Jupiter close to the Moon 12th
Border Stargaze at Albury from Wednesday 15th to Sunday 19th main speaker Alex Cherney
Astrophotography work shop at BSA Ballarat 25th main speaker Greg Walton.

Note we will need help with National Science week 12th to 18th extra public night on August 17th

September / 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30 Full Moon						1
2 Father day	3	4	5	6	7 Public Night 8pm	8 Last Quarter
9	10	11	12	13	14	15 Members Night BBQ 6pm New Moon
16	17	18	19 General Meeting 8pm see Moon	20	21	22 School Holidays start
23 First Quarter	24	25	26 Committee meeting 8pm	27	28	29

Monthly Events & High Lights.

Public night 7th 8pm start – Members Night BBQ 6pm at the Briars 15th - General Meeting at 8pm 19th

Slim Moon between Saturn and Mars on 19th September at 7:30pm.

Jupiter and the Moon close on the 9th September best time to view is 2am. – **Watch out for Auroras.**

October / 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5 Public Night 8pm	6
7 School holidays end - Daylight saving begins.	8 Last Quarter	9	10	11	12 VicSouth	13 VicSouth Alex Cherney
14 VicSouth	15 New Moon Vic/South	16	17 General Meeting 8pm	18 What 2 Mars?	19 What 2 Mars?	20 Members Night BBQ 6pm
21 What 2 Mars?	22 First Quarter What 2 Mars?	23	24 Committee meeting 8pm	25	26	27
28	29	30 Full Moon	31			

Monthly Events & High Lights.

Public night 5th 8pm start - Members Night BBQ 6pm at the Briars 20th - General Meeting at 8pm 17th

10th Annual Vic South Desert Spring Start Party from Friday 12th to Monday 15th.

Jupiter and Moon close on the 5th best time to view is midnight - **Watch out for Auroras.**

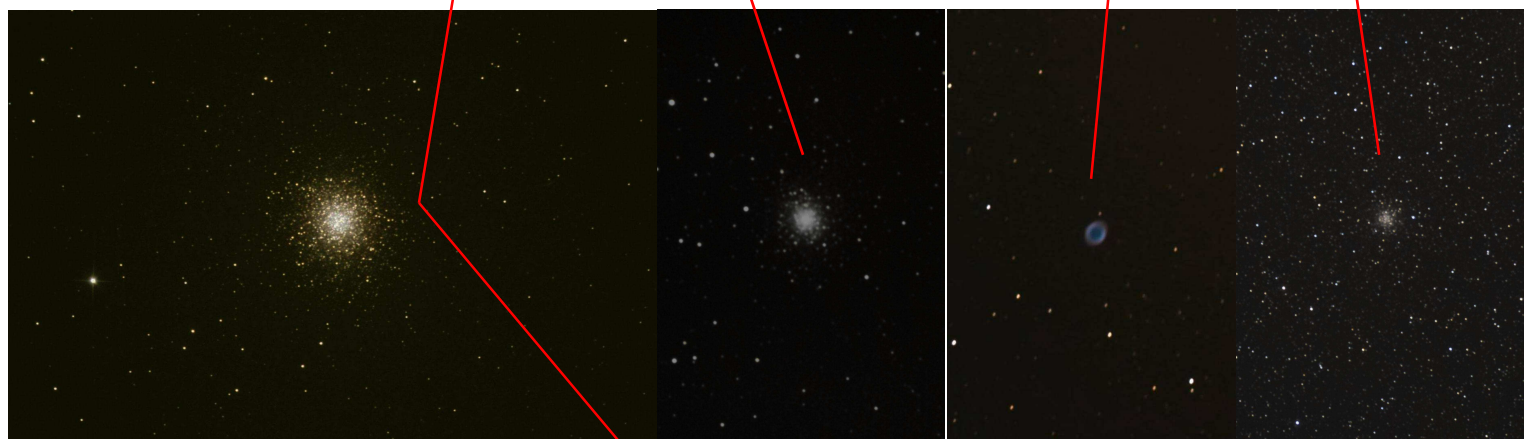
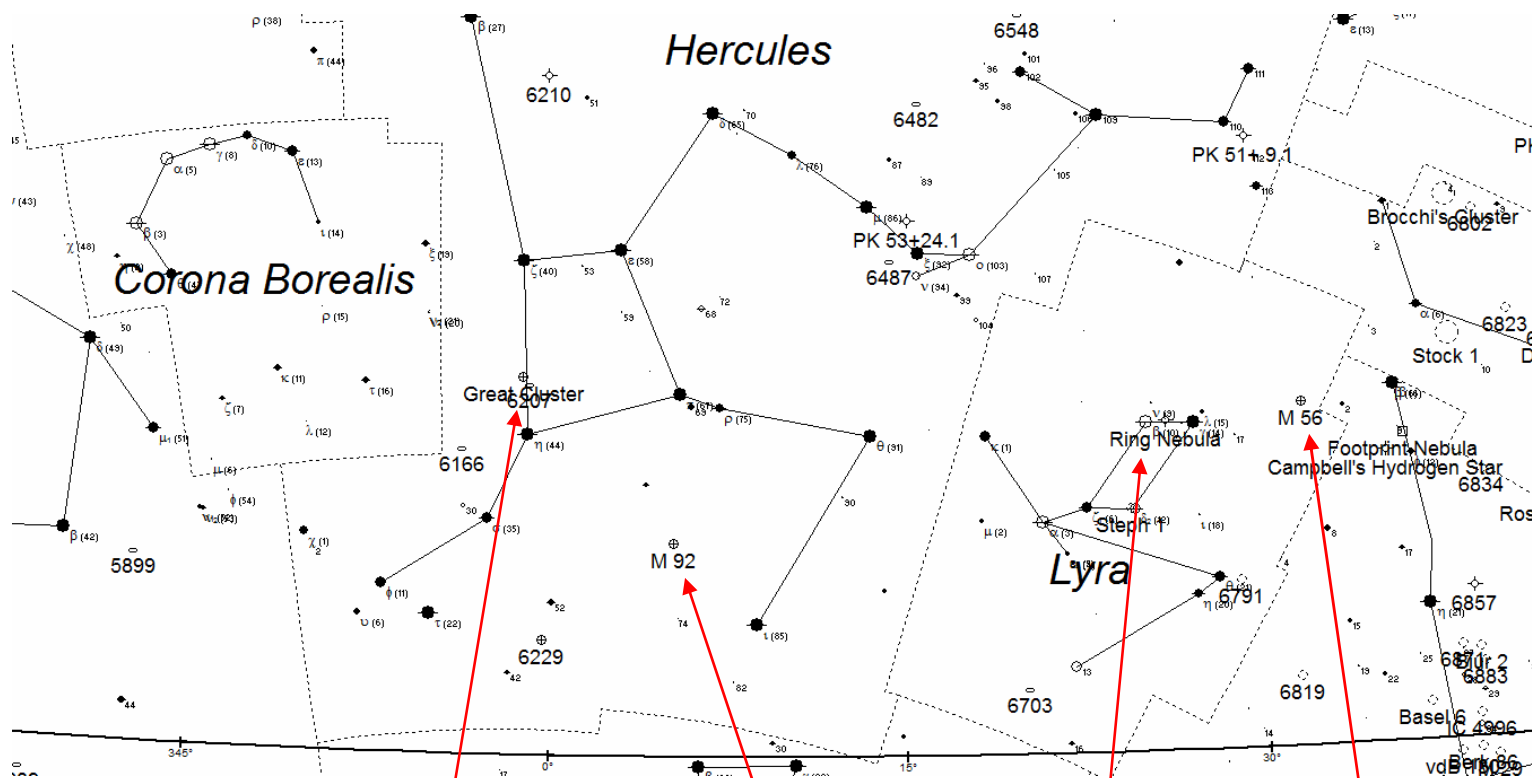
Venus and the Moon in the dawn sky on the 13th.

Mars and the faults Mars Antares near the Moon on the 18th with Mercury on the horizon below.

VicSouth little Desert Star Party 12th to 14th 2012 main speaker Alex Cherney see details below.

Sky for the August / September we look north to Hercules / Lyra.

In Hercules you will find the largest globular cluster in the northern hemisphere M13 the Great Cluster, also M92 both easy to find as they are between 2 stars. In Lyra also between 2 stars making it easy to find is the bright planetary nebula M57 the Ring Nebula and a small globular cluster M56 about 5 degree to the right. Now is the best time to view these objects. Produced on Sky Map & Starry Night.



By Greg Walton

SOCIETY NEWS

Transit Ceremonies at St Michael's Church @Much Hoole

Earlier this year the society donated £100 to help the upkeep of St Michael's Church at Much Hoole, UK where Jeremiah Horrocks who observe a transit of Venus in 1839 tutored. Ian Sullivan has given talks on the details of Horrock's life showing photos of the church and nearby Carr House. We recently received from Eric Barker, Churchwarden, details of the ceremonies conducted at the church to commemorate Horrocks observations.

He writes:

"On Transit night we welcomed about 170 people into the church. The evening began with the Carillon of bells (recently restored) when Dr. Victoria Gibson of St. Georges Church Chorley played a peal that she had written for the event. Dr. Robert Walsh gave a fascinating talk on The Transit, the sun and what this meant to scientists. There was also poetry readings and music.

We went back into church to hear a modern classical piece composed by Julia Usher on first contact and again on fourth contact around 5.09 am on Wednesday

A Central Lancashire University team led by Mr. David Henckel set up a live feed with NASA and we received pictures from Hawaii and space. A webcam in the church transmitted pictures back to NASA, and we featured on their website. The screen was a large piece of muslin type material suspended from the ceiling in front of the altar with a picture of Jeremiah Horrocks superimposed from the east window below the image of the sun. We did not attempt to observe the Transit at sunrise because of cloud and rain, so the planned trip to Carr House was abandoned. A few observers from other parts of the country, particularly in Scotland did have a view of the Transit, many through hazy cloud.

We had a Transit Celebration Parish Dinner on the evening of the sixth of June. A successful event well attended; where Dr. Clive Elphick the current owner of Carr House gave a short but fascinating account of Jeremiah and the Rector the Rev. Derek Baines, being a Yorkshire man, gave an equally interesting talk on Captain James Cook.

The Society for the History of Astronomy attended Carr House and the Church on Saturday 10th, and we were privileged to hear a detailed address from the pulpit by Dr. Allan Chapman on Jeremiah. The Society gave a generous donation to the church, for which we are very grateful."

It is interesting to note that even today a Transit of Venus is truly a global event worth celebrating. *By Ian Sullivan*

**Many MPAS members have already booked for the VicSouth Desert Star Party.
Main speaker is Alex Cherney on time lapse Photography. Hope to see you there.**

VicSouth Desert Star Party 2012

Accommodation & Meals

Friday 12 October to Sunday 14 October 2012

Fax: 03 53915 217

Email: info@littledesertlodge.com.au

**For further information regarding Accommodation and Meals,
Please contact the team at the Lodge on
(03) 53915232 during business hours.**



Little Desert Nature Lodge

Little Desert Nature Lodge Pty Ltd
1457Nhill - Harrow Road
(PO Box 202)
Nhill, Victoria, 3418
info@littledesertlodge.com.au
www.littledesertlodge.com.au

NEW MEMBERS

Welcome

Sylvie Grandit
Elena Vitale
James Scott
Greg Gibbons
John Woodall
John Holding

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
Committee member

2012 Subscriptions Due

A number of members have not renewed their 2012 subscriptions which always come due in January.

Subscriptions can be paid in a number of ways:

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

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 few months, a very big thank-you goes to you all. Your efforts are very much appreciated, and are being very well received.

THANK YOU

PUBLIC NIGHT THANK-YOU

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 2012 fees are still the same as last years prices. So to assist the society in maintaining the facilities and services we provide, we appreciate your prompt payment for the 2012 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

As an alternative, multi-year memberships are available upon request, and can save you some money over the long term. Please see a committee member about these options.

We were invited to a holiday lodge at Glen Maggie.

The new owners of the lodge got interested in astronomy when they bought the lodge, for it came with its own observatory. We were to help the hosts out with advice on getting their Astrophotography equipment working. For that they feed us well and the accommodation was excellent. As you can see in the photos below it's a very pretty location looking over the Glen Maggie weir on the edge of its own air field, there was even a couple of planes in the shed. I was offered a ride in one of the planes but declined. The gardens around the lodge were full of colourfully birds, the weather was cool but the skies were clear. Steve brought out the big gun for the first time we were all very impressed, especially with those shiny weights. All in all they were a very impressive array of equipment. We kept the cameras running all night and only occasionally nicking back to the lodge for hot chocolate and red wine. Those in attendance were Phil Hart, Steve Mohr, James McHugh, Paul Homer, Maurice Valimbreti, my self and very patient wives. I must say a very big thanks to our hosts and hope one day we can do it all again.

By Greg Walton



Big shiny weights



Transit @ The Briars

There was movement at the Briars
For the word had got around
That Venus would make a transit on the day
And a picture would be worth a pretty pound.

Astronomers far and wide
Had gathered side by side
Determined to photo-capture this lovely prey
The BBQ was lit and some breakfast cooked a bit
Eggs and bacon was the order of the day

First contact came about and there was a mighty shout
As people watched the planet start its pass
But the weather god was mad
And the prospects soon turned bad
Rainy clouds rolled in across the sky
The weather made us sad
But the glimpse we had was glad
And we all agreed it was worth coming on the day
Now the event has come and been
Never more shall it be seen
Unless we live til Christmas 2117

By Peter Lowe

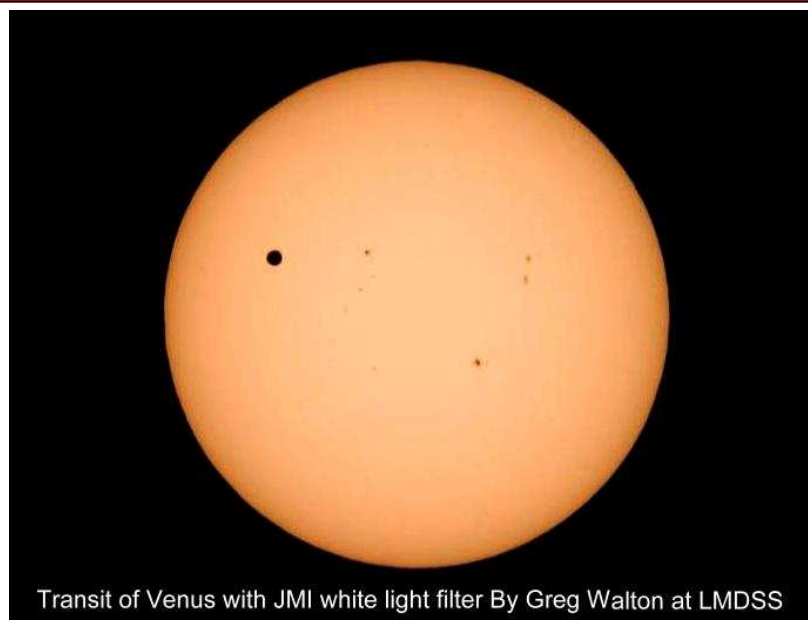


The Transit of Venus from Heathcote.

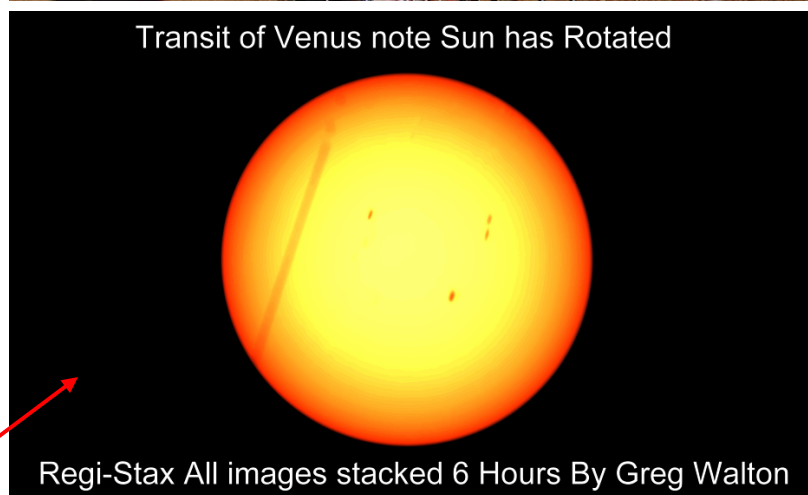
The days before the transit, the weather looked very bad for seeing anything. So I decided to travel north to Heathcote to the ASV's LMDSS where there was 240-volt power and possible clearer skies. Tony, Frank and I arrived the day before the transit on the Tuesday so we could polar align the EQ mounted telescopes and get everything running ready for the early 8:13 start on Wednesday. There was a full moon beaming down on us, so it was a bit of trouble seeing Octans. After a bit of mucking around I got Saturn sitting in the centre of the eyepiece for 3 hours, happy with this I set the alarm clock of 7am and went to sleep. I also left a fish eye lens and camera running all night. The morning of the transit the sky was perfectly clear, so we powered up the scopes, found Venus and set the camera to take a photo every 30 seconds this meant I should have 800 images as the whole transit took 400 minutes. As the start of the transit was only 8 degrees above the horizon, we had bad seeing condition, plus a tree got in the way for the finish 2 minutes blurring the view even more. I viewed the start of the transit with my hydrogen alpha PST and seen first contacted, as Venus moved on to the disc of the sun I could see Venus atmosphere as a thin line around the planet, this I did not expect to see. I did not both trying to image this, I was very happy just watching. My ED80 refractor on an EQ6 mount with the JMI white light solar filter worked perfectly for the whole transit with out me having to adjust it. I set the mount on solar rate and the sun sat in the centre of the CCD all day. I just had to keep an eye on all the cables, if one got snagged and fell out it would the all over. I could view the transit through to view finder on the camera between shots. We also viewed the transit with a pair of binoculars with solar filters attached they worked very nice. We also projected the sun on to the side of my car with a pair of binoculars. Dominic arrived halfway through the transit; he had seen the start of the transit in Melbourne but got clouded out. There were only 10 people there on the day, so we had few distractions. The clouds rolled in to spoil the last ½ hour of the transit, but we all were very happy with what we had seen and imaged.

By Greg Walton

PS: I stacked all images and noticed that the Sun spot have move in the 6 ½ hours of the transit.



Transit of Venus with JMI white light filter By Greg Walton at LMDSS



Transit of Venus note Sun has Rotated

Regi-Stax All images stacked 6 Hours By Greg Walton



ASTRO NEWS

China's Space Program Goes into High Gear

The successful return of three Chinese astronauts from their mission to the Tiangong space station marks not only a next major step in the Chinese space program but squarely establishes China's status as a space faring nation. The 13 days mission proved complex manoeuvring, docking and undocking procedures as well as the basic living procedures within the module. This is China's most complex and longest multi-crew mission, including the first Chinese woman in space. While the Tiangong is a fairly basic space station, it will act as a base of operations for the next few missions as vital steps in China's plan to build a major space facility by 2020 coinciding with planned ISS decommission.

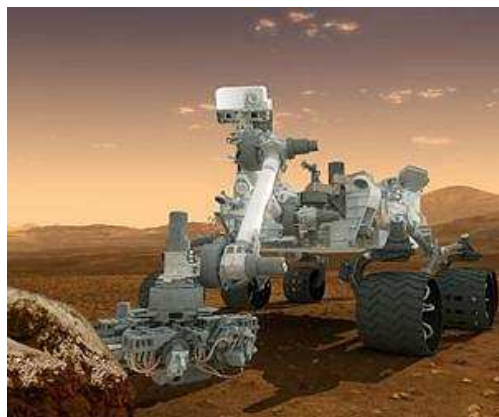
The Chinese government have recognised that the demise of the American manned flight capabilities with the closure of the space shuttle program combined with the need to maintain ISS operations plus the failing US economy has created a window of opportunity during which China might be able to catch up and take the lead in space exploration. In less than 10 years China has gone from its first manned flight to establishing a station in space. It is expected there will be further missions to Tiangong to be followed by the launch of the larger Tiangong2 and Tiangong3 later this decade. Tiangong3 is expected to be a permanently occupied station with multi-docking ports for cargo carrying vehicles. Taking advantage of the technology changes since the 1960's China is hoping to leapfrog its way into a leading position. How the rest of the world, particularly the Americans and Russians respond is unknown but we may yet have another space race to rival the heady days of Sputnik and Apollo.



Curiosity Rover on Track for an August Mars Landing

Firing its thrusters for a 40 second manoeuvre NASA's latest Mars spacecraft is set to deliver the rover Curiosity to a landing target beside a martian mountain on Aug. 5. The plan is to take the rover close to the martian surface and hover while the rover itself is gently lower to the ground. The landing site chosen has an environment thought to be

favourable for microbial life. Amongst other things Curiosity will be looking for biological signs. Whilst not looking for life directly this is the first time such biological experiments have been conducted since the Viking landings. Information gathered will help in plans for a manned mission.



Watching Our Black Hole Eat Gas.

ESO astronomers are preparing to watch the black hole at the centre of our galaxy consume a giant gas cloud. The gas cloud is expected to collide sometime in 2013. Since its discovery its speed has steadily increased to more than 8 million km/hr. This is a unique opportunity to observe how a super massive black hole consumes material, in real time. By mid-2013 the gas cloud is expected to pass the black hole formally known as Sagittarius A, at a distance of only 36 light-hours (equivalent to 40,000,000,000km), which is extremely close in astronomical terms.

Giant Solar Flares or Nearby Supernova - Tree rings tell an 8th-century mystery

In the late eighth century, Earth was hit by a mystery blast of cosmic rays recorded in tree rings with an increase in the level of carbon 14. Analysis of two ancient cedar trees found a surge in carbon-14 occurred in AD 774 and AD 775. The origin of these cosmic rays is unclear but likely sources include variations in the solar cycle under the Schwabe cycle or a sudden increase in solar flare activity or possibly a nearby supernova. The mystery is none of these seem capable of explaining the huge rise in carbon-14 levels. The research team is fine-tuning their search looking at telltale traces of beryllium and nitrate isotopes. They also plan a wider search of historical documents to see if, 1,237 years ago, anyone noted a strange flare in the sky. *By Peter Lowe*



29 November 2011

25 March 2012

27 April 2012

15 June 2012

Super Nova in M95 is still going strong after 3 months, first noticed on 16 March 2012 when Mars was near by. The way we check the brightness is to compare the super nova with near by stars, find a star with the same magnitude. Photographed by Greg Walton using 8inch F4 Newtonian EQ6 Pentax Kr 20x30sec iso12800 cropped

AMATEUR ASTRONOMY and the CARBON TAX

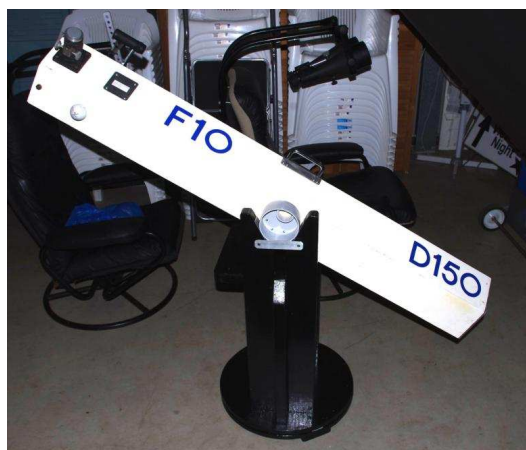
By Peter Lowe

In a classic case of social re-engineering the carbon tax started this July. The basic premise is the world's atmosphere is warming up partly because mankind has been adding its own carbon dioxide contribution and this is pushing the climate into overdrive. Proving this has been enormously complex, difficult and has invoked much academic argument, debate and emotion. While the scientific argument still rages unabated, political prognostications have come down firmly on mankind's activities as the "smoking gun" and the need to reduce our dependency upon carbon (mostly fossil) based energy. The Australian government has taken the view that globally an alternate energy economy is the way of the future and Australians will be better off embracing this change now to be better prepared for the coming energy efficient tomorrow. The theory posits applying free market forces to drive energy efficiencies by putting a cost upon energy-based activities using carbon as a measure of efficiency. Whether this strategy works or not will be the subject of history however the carbon tax may prove a boon for astronomy. Amateurs might be able to help significantly.

Light pollution is one of the biggest problems for visual astronomy and is also society's most visible example of energy wastage.

We all know light pollution is energy generated at a power station, transmitted across the country and distributed to millions of light globes only radiate a significant proportion of their light directly and uselessly into the sky. For decades astronomers have been complaining about light pollution but their cries have fallen upon deaf ears because to the politicians and city planners actually see light pollution as a positive sign of progress. From their viewpoint reducing light pollution runs against progress. The carbon tax offers an opportunity to highlight (pardon the pun) that light pollution visibly advertises the effectiveness or not of the government's carbon reduction policies. We will know if the carbon tax strategy is working when we see our city sky glow start to go dark and the stars start to come out.

Amateur astronomers need to promote the message that government at all levels is not fair dinkum about global warming unless the light pollution declines. This is not about turning lights off (although that would not doubt help) but about better planning and shielding lights so all illumination is direct down toward the ground. Once light hits the ground very little reflects up into the sky. The real problem is light shining directly into the sky. Every time I drive down the Nepean Highway at night and admire the city lights from Oliver's Hill it always reminds me of how light pollution is the most visible symbol of waste. So next time you get into a discussion about the carbon tax, please bring up the subject of light pollution and why dark skies are important to both the country and astronomy.



MPAS 6 inch F10 Woody restored

Right Rain Bow over the MPAS site at the Briars 23June 2012 by Greg Walton



Predicting Aurorae

As we are heading toward the solar activity maximum I have become slightly obsessed with Southern Lights. Since 2010 I have set the web browser home page to Aurora Monitor and it is the first thing I check in the morning and often the last web page I look before going to bed. Sometimes, when the dials on Aurora Monitor and weather forecast look favourable, I get all excited and phone/text Greg, Paul or Dave, jump in the car and drive to the ocean side of Mornington peninsula with unobstructed southern views.

Predicting the aurora is a very difficult task, however a few space-based instruments made it somewhat easier to short-term (1-4 hour) forecasts and even some long-term predictions.

GOES X-Ray Monitor

First I look at the activity on the Sun for any significant X-Ray flares and accompanying Coronal Mass Ejections (CME) with help of X-ray monitoring instruments aboard National Oceanic and Atmospheric Administration's (NOAA) geostationary GOES satellites (Figure 1).

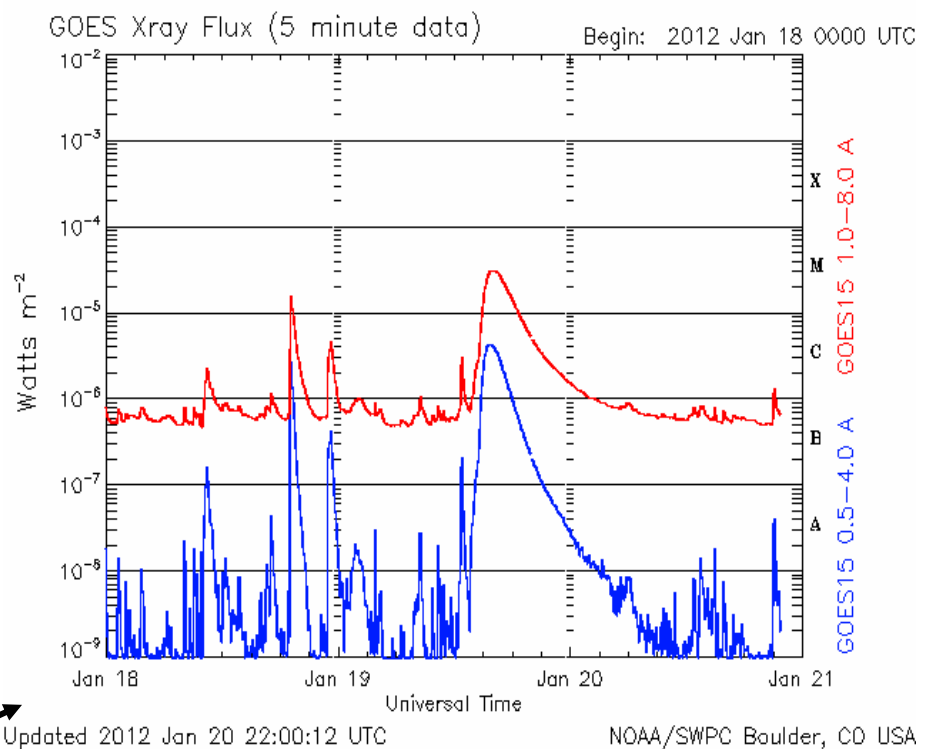


Figure 1. GOES X-Ray Flux for January 18 2012

http://www.swpc.noaa.gov/rt_plots/xray_1m.html

Solar Monitor

When the X-Ray flux power reaches M or X class (letters on the right) it is worthwhile to identify the location of the flare on the disk of the Sun and whether or not it was geo-effective. There is a great website for that www.solarmonitor.org which lists the sunspots and the solar flares which they produced and shows them on the disk of the Sun (Figure 2)

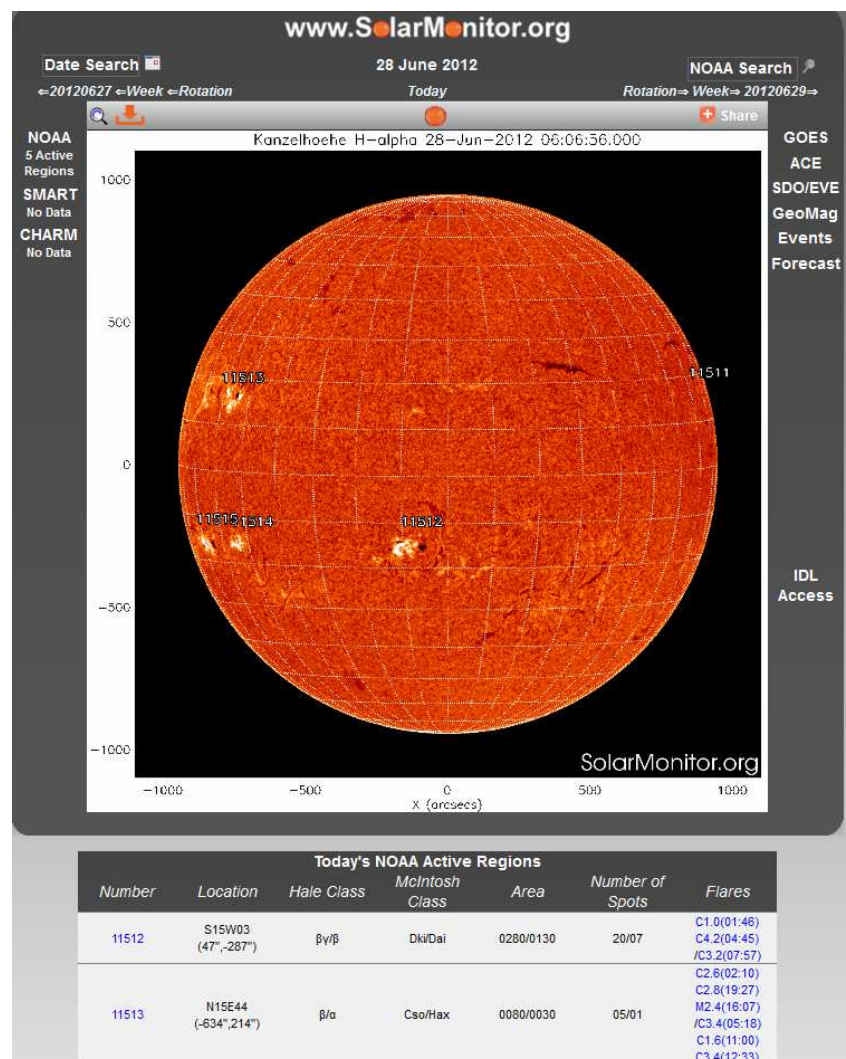


Figure 2. SolarMonitor.org listing for 28 June 2012

www.solarmonitor.org

WSA-Enlil Solar Wind Propagation Numerical Forecast

If the flare and CME were geo-effective, NOAA usually publishes the output of their WSA-Enlil numeric prediction model (Figure 3) for the solar wind propagation in the Solar System. The model predicts the time and strength of the solar wind arrival. The accuracy of this model is stated 12 hours but I found that sometimes it can be off my more than that, and in my short experience the solar wind usually arrived a bit later than predicted. When the space weather is “fair” WAS-Enlil model output is updated for high-speed coronal hole solar wind (twisted lines in Figure 3), which can sometimes be as effective as CMEs in producing aurorae.

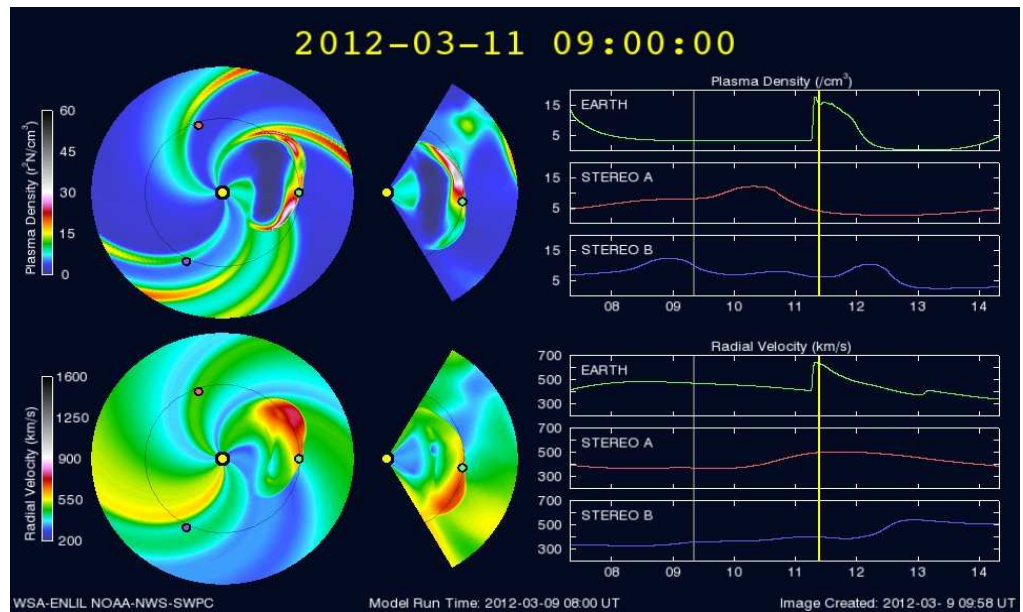


Figure 3. WSA-Enlil numerical forecast for 13 March 2012.

www.swpc.noaa.gov/wsa-enlil/

ACE Satellite Solar Wind Monitor

Armed with all that information I keep an eye on the Moon phase, weather and data from NOAA Advanced Composition Explorer (ACE) Satellite. ACE orbits the Sun/Earth L1 point and measures the solar wind, the interplanetary magnetic field and higher energy particles accelerated by the Sun, before they reach the Earth. Figure 4 shows the seven-day graph for Solar Wind Electron, Proton, and Alpha Monitor (SWEPAM) and Interplanetary Magnetic Field (MAG) monitor aboard ACE satellite.

The important parameters in the ACE MAG_SWEPAM graph:

- Solar wind speed (yellow line) – ideally higher than 400 km/s.
- Solar wind density (orange line) – 10 or higher is great. Usually the density builds up first and then when the speed increases the density goes down.
If the solar wind speed is higher than 600 km/s then the density can be low and still produce the aurora. Vice versa, if the density is higher than 10 then the aurora can occur even with low solar wind speed.
- Most important and unpredictable parameter is the north-south orientation of the Interplanetary Magnetic Field Bz (red line). It oscillates randomly and needs to be oriented southward for the magnetic reconnection to occur at the Earth's magnetosphere so that the solar wind plasma can flow into the ionosphere.

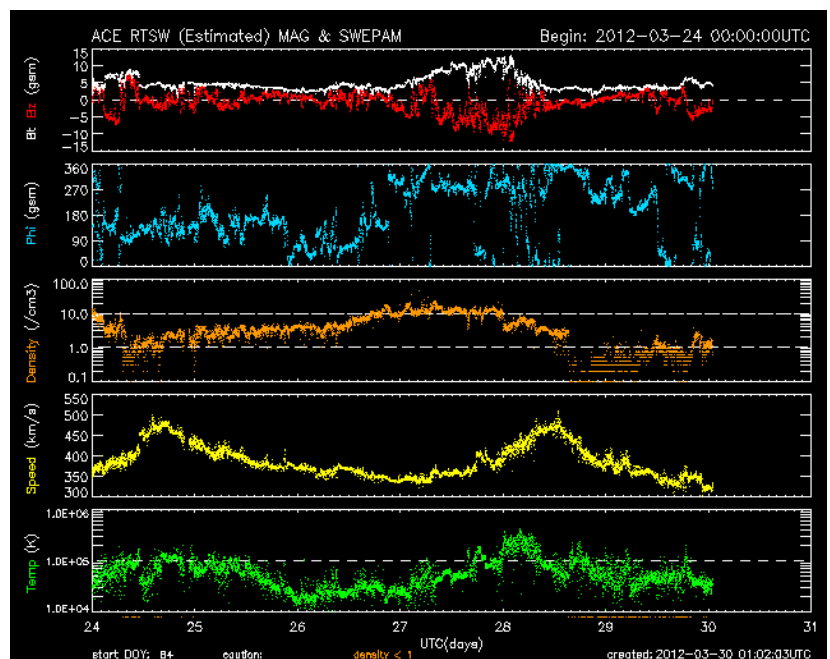


Figure 4. 7-day ACE MAG_SWEPAM graph for 24 March 2012

www.swpc.noaa.gov/ace/ace_rtsw_data.html

Wing Kp index forecast

Based on the ACE data, NASA also publishes Wing numerical model for Kp index prediction for 1-hour and 4-hour intervals (Figure 5). Usually the Kp index needs to be at least 5 to capture Aurora in long exposure photographs (ISO 3200, 30 seconds) and 6 or 7 to be seen visually from around Melbourne. Usually if something significant happens at ACE it gives me 45-60 minutes warning – just enough to jump in the car and drive to Flinders.

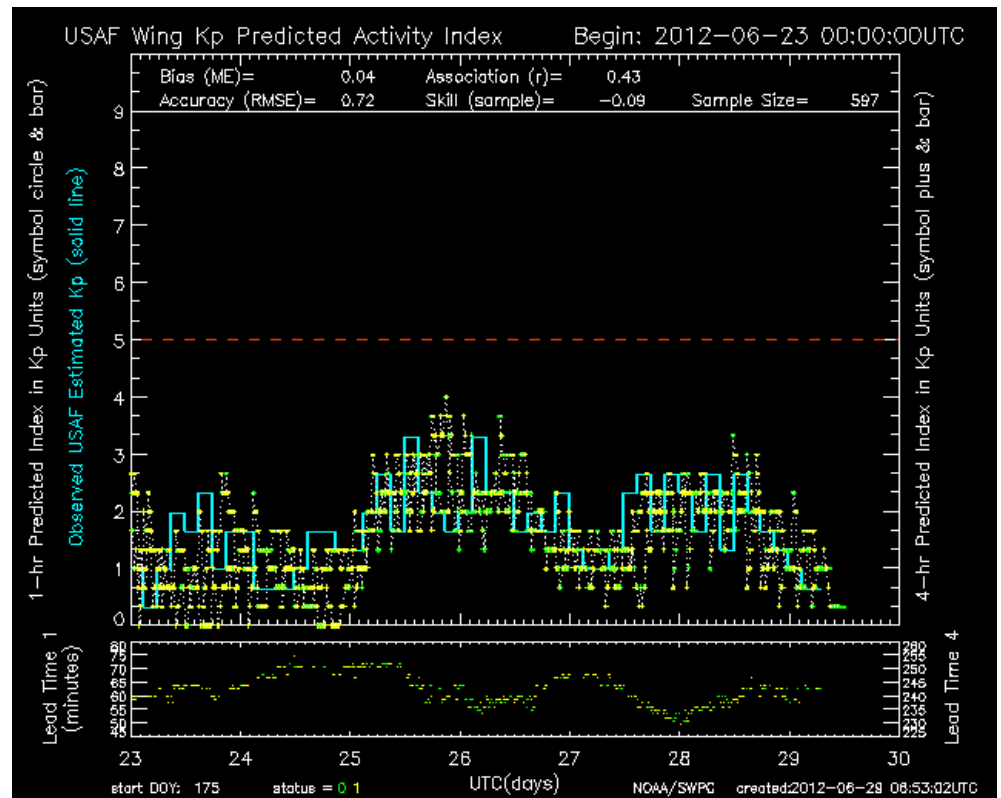


Figure 5. Wing Kp Model 7 Day Graph

www.swpc.noaa.gov/wingkp/

POES Satellite Real-time Auroral Oval

Another useful tool in estimating if the aurora is happening in real-time is the statistical Auroral Oval (Figure 6.) as measured by NOAA Polar Orbiting POES satellites.

For a photographic aurora the activity level needs to be at least 9 and for visual aurora – 10 with the oval covering Tasmania.

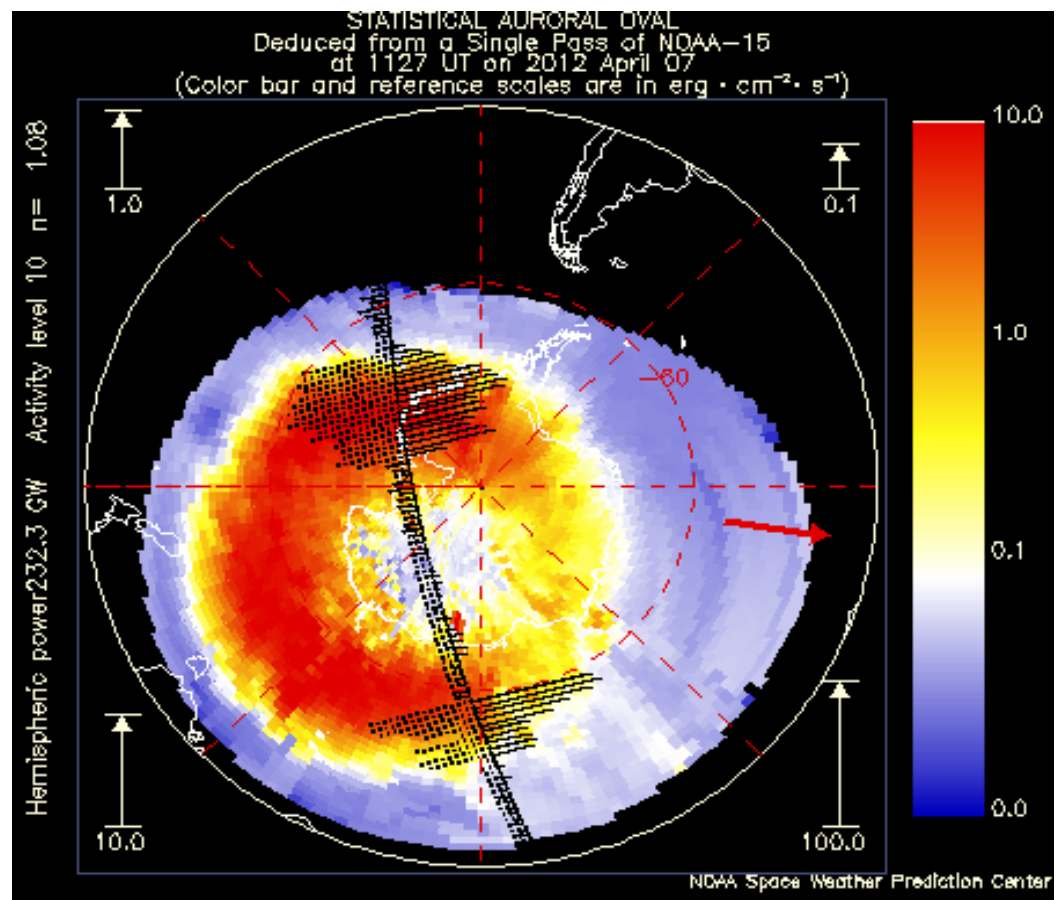


Figure 6. POES Auroral Oval for April 7, 2012 www.swpc.noaa.gov/pmap/

All Tools on One Page

Luckily there is a single web page with most of these and some other useful tools put together by the MBK Team from Maribor, Slovenia (Figure 7).

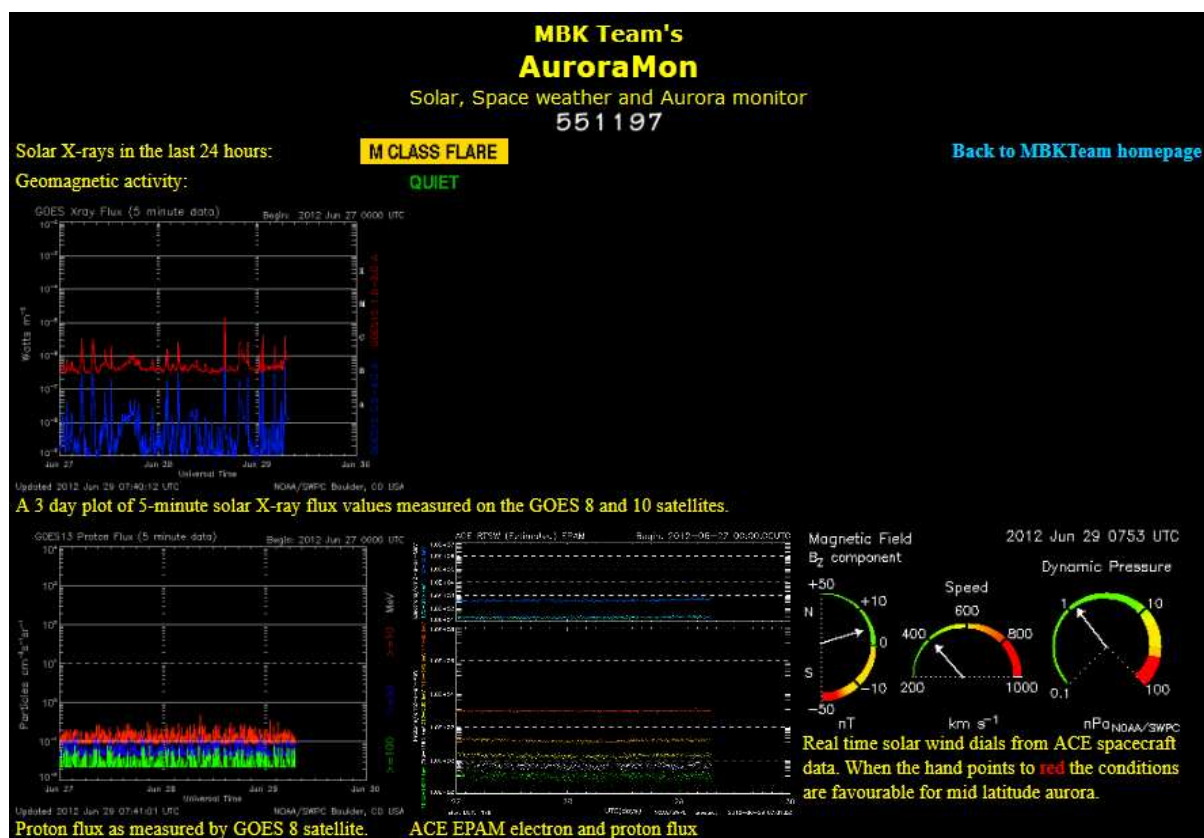
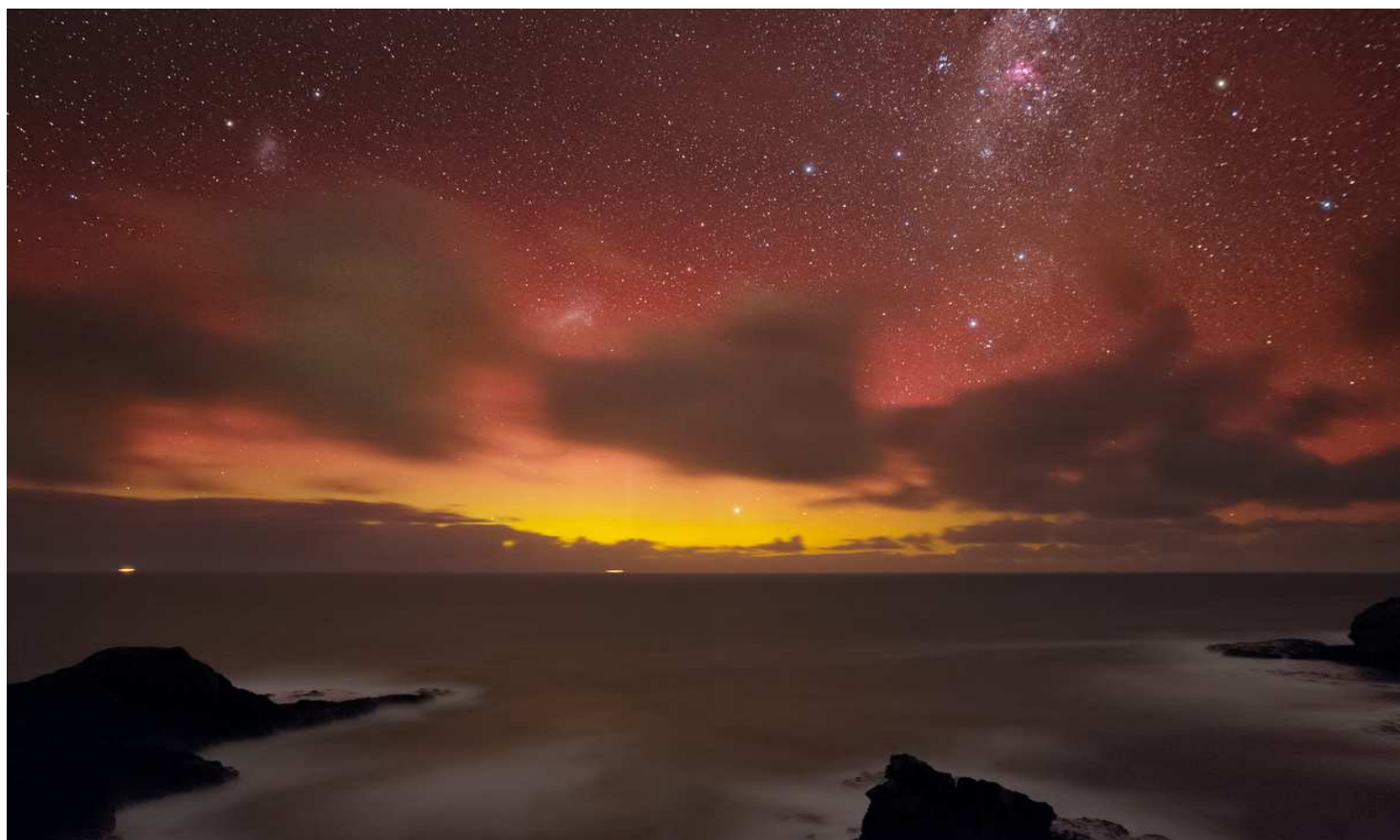


Figure 7. MBK Team's AuroraMon
www.orion-drustvo.si/MBKTeam/auroramom.html

Below Greg Walton, Paul Albers, Dave Rolfe and I were rewarded with beautiful southern lights display a number of times with most memorable nights on January 22nd and June 18th 2012



Red Aurora Australis, January 22nd 2012

By Alex Cherney

Aurora Busters

By Paul Albers



Sometimes I get a phone call at 10:30pm or even a high priority email, but somehow, somewhere there are people watching and waiting for the right moment. Within the Mornington Peninsula lives a motley crew armed with cameras, Ipads and mobile phones so they can capture an image of the southern aurora "Aurora Australis", they are the Aurora Busters.

The Mornington Peninsula offers great opportunities for observing and imaging a spectacular aurora. The Mornington Peninsula offers many unobstructed, minimal light polluted views to Celestial South. A drive to the coastal regions ranging from Westernport bay to Portsea will secure an excellent position. The local shire and National Parks Victoria have built many observation platforms along the coast. Many are elevated and have clear majestic views. I have been surfing along this coastline for over 30 years and there are some nice little secluded places to take full advantage ☺

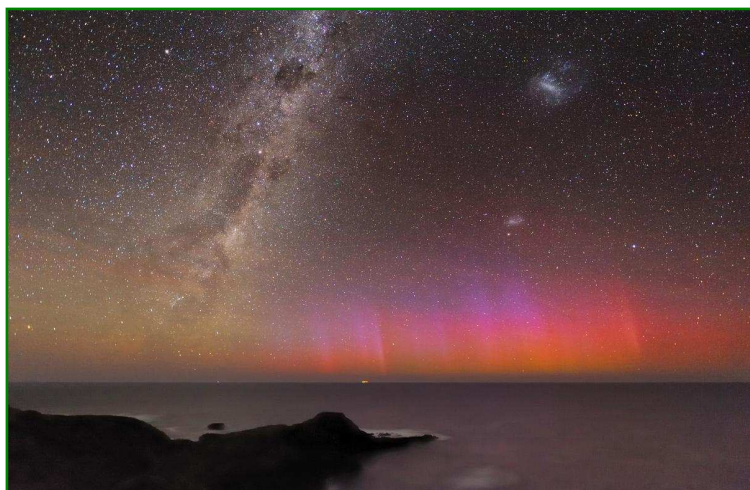
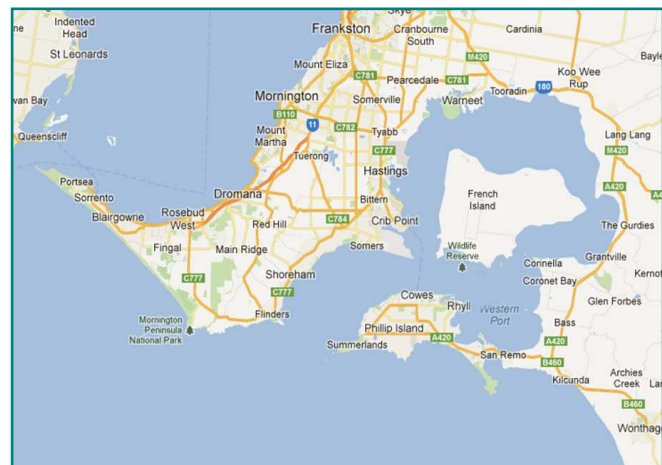
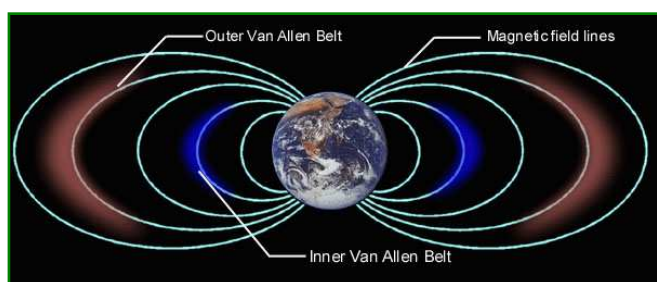
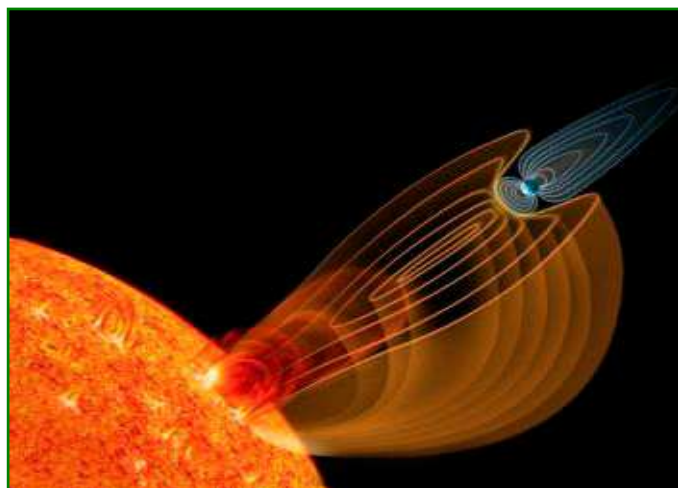


Photo: Alex Cherney January 2012 ©

The most surprising aspect about the "Aurora Australis" is how often they appear in the Southern sky. In this article I will discuss how you can increase your chances to observe and image one. The techniques to image an aurora, a brief explanation to why auroras appear and why they appear at certain times and places.

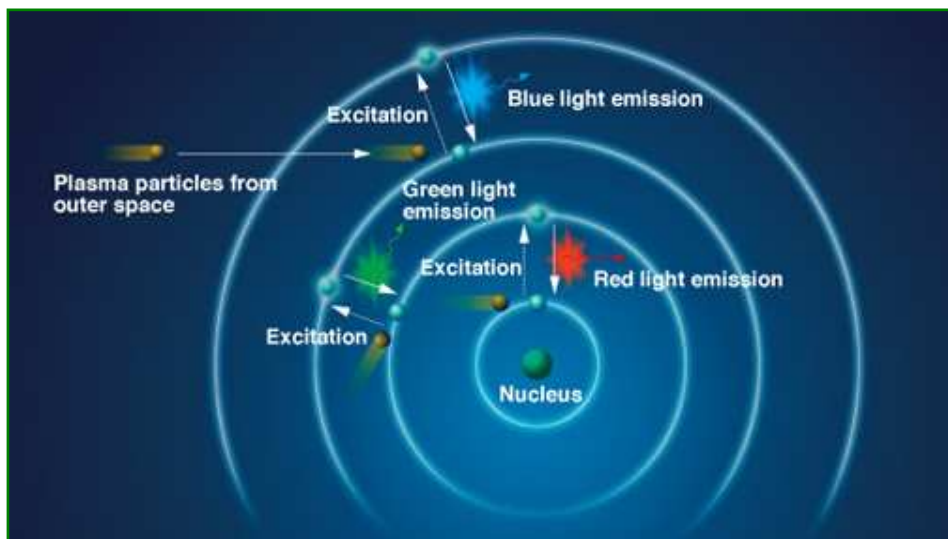
Why Auroras appear

The solar wind carries with it levels of dangerous radiation and charged particles generated from either a Corona Mass Ejection or a Solar flare. As the speeding solar wind hits the Earth's magnetic field, the field traps particles into the "Van Allen radiation belts", which can shield the Earth against the damaging solar wind. The interaction of the wind and the Earth's magnetic field generate two rings of electrical current that can flow around the magnetic poles and that in turn create the aurora.



The "Van Allen Belts" are weakest at the Northern and Southern poles, so the intense radiation and charged particles leak inwards. The stronger the geomagnetic storm the closer towards the equator the aurora can be seen.

"Solar flares emit large quantities of UV and X-ray radiation which, after some 8 minutes travel to Earth, can cause a sudden increase in the density of ionized particles in the Earth's ionosphere. Such disturbances last from minutes to hours, corresponding to the lifetime of the flare. The slower moving plasma, a soup of primarily electrons and protons, takes at least several hours to a few days to reach Earth." (<http://astronomy.swin.edu.au/cms/astro/cosmos/S/Solar+Flare>)

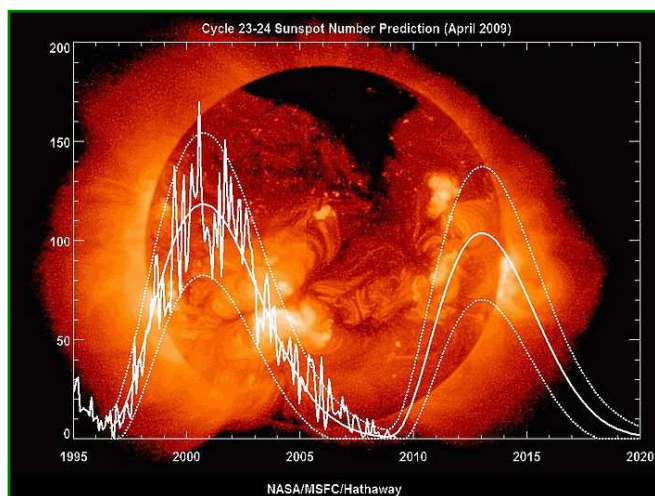


This diagram illustrates why we see an aurora. The UV and X-ray radiation excites the atoms of the Earth's magnetic field, resulting in the electron of that atom rotating in a Higher orbit than usual. A Photon is released when the electron returns to its normal orbit around the nucleus.

The main color is green, then blue and finally red. It depends on what gas is involved and how high in the ionosphere the reaction takes place.

Oxygen gives off green light usually, or sometimes brownish-red. Nitrogen gives off blue or red. If the collisions take place high up then oxygen gives off red. Lower down oxygen gives green and nitrogen shines blue and red. Lower down still oxygen is quiet and nitrogen still gives off blue and red.

When do Auroras appear ?



I have been an Amateur Radio operator since 1989

and have enjoyed communicating around the world many times. I would not have been able to achieve this without the increased Sunspot activity of the Sun.

The Sun undergoes proliferation of Sunspot activity every eleven years. With the Sunspot activity increasing Coronal mass ejections and solar flares are more frequent. It is accurate to say that every eleven years the chance of observing and imaging an aurora is optimal.

The graph suggests we are about to enter a period of increased activity.

Using the Internet

The internet offers various web pages we can use to monitor and predict not only the Sun's activity but actual Auroral activity too.

Here is a list of some excellent sites ☺

http://www.ips.gov.au/Space_Weather

<http://helios.swpc.noaa.gov/ovation/>

<http://sohowww.nascom.nasa.gov/home.html>

<http://www.swpc.noaa.gov/wingkp/index.html>

Below Aurora shots taken with 10mm Lens on 28 March 2012 from Elephant Rock at Flinders.



Photo Greg Walton 2012 ©

We monitor the "K-index" which "indicates the disturbances in the horizontal component of earth's magnetic field with an integer in the range 0-9 1 being calm and 5 or more indicating a geomagnetic storm." (<http://en.wikipedia.org/wiki/K-index>)

I also suggest the Yahoo newsgroup "Southern Aurora" run by Ian Musgrave.

<http://tech.groups.yahoo.com/group/southern-aurora/>

Ian sends an alert and email informing of a possible chance of Auroral activity.



Photo Paul Albers June 2012 ©

How to Image an Aurora

Equipment

The most important piece of equipment is the lens. Between the four of us the lens we use varies from Wide angle to Fisheye, 10mm to 50mm @ 2.8 f/stop and sometimes faster. Alex has two and sometimes three setups utilising his Sony and Nikon full frame cameras, where as Greg and Dave use the Pentax cameras ranging from the K-5, K-r and K-x. Tripod photography is a must and sometimes Dew control is necessary. I use my Pentax K-x with a Samyang 14mm F/2.8 lens.

Methodology

Basically we setup the cameras on tripods and continually take images. On average we will take over 1000 subs over a period of three hours. Alex and Greg usually stay until the early hours of the morning. The images are then converted into a video by a program called "Virtual Dub".

<http://downloadvirtualdub.com/>

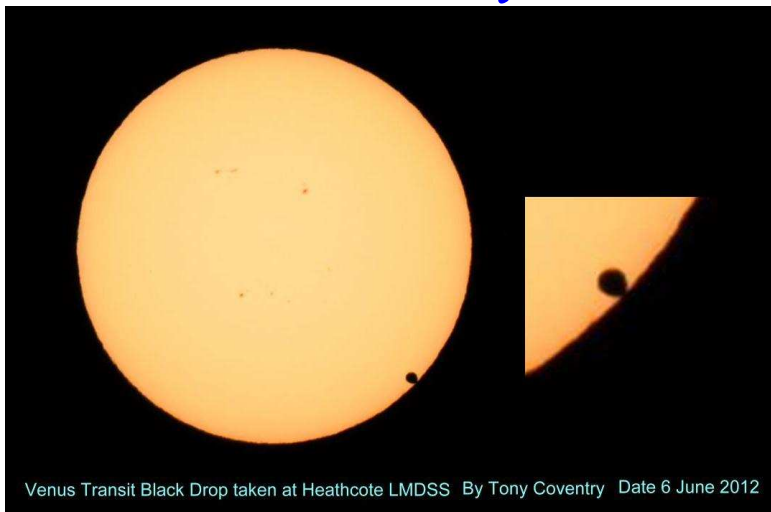


The dedicated crew at Flinders.

The best image is usually selected from the pile and is processed with Photoshop. A good supply of rechargeable batteries helps not to mention warm clothes, snacks, and a flask full of coffee is a popular choice.

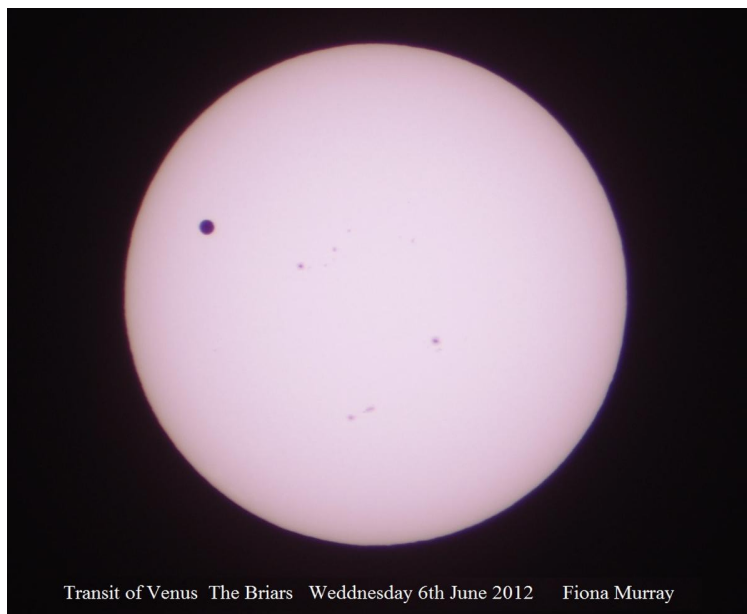
So happy Hunting
Regards Paul Albers ☺

The Members Gallery.



Venus Transit Black Drop taken at Heathcote LMDSS By Tony Coventry Date 6 June 2012

Above Transit of Venus Black Drop taken at Heathcote LMDSS with JMI white light filter & 80mm Refractor, By *Tony Coventry*



Transit of Venus The Briars Wednesday 6th June 2012 Fiona Murray

Above Right Transit of Venus from the Briars with foil filter & clubs 80mm Refractor on EQ mount & Pentax Kx, By *Fiona Murray*

Right Sun taken with 60mm Lunt By *Mark Hillen*.

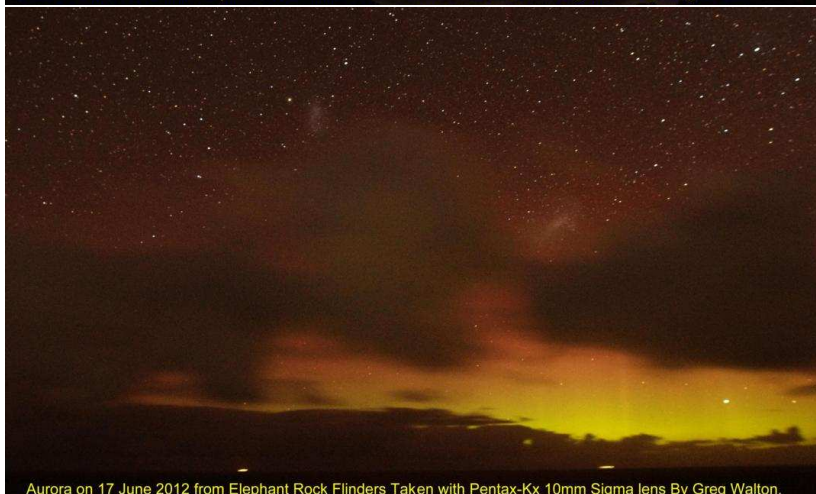


Right Venus projected on to Venus with binoculars by *Fred Scutall*

Below 2 Aurora shots taken with 10mm & 20mm Lens on 17 June 2012 from Elephant Rock at Flinders, by *Greg Walton*.



Aurora 17 June 2012 from Elephant Rock Flinders Taken with Pentax Kx 10mm Sigma lens By Greg Walton.



Aurora on 17 June 2012 from Elephant Rock Flinders Taken with Pentax-Kx 10mm Sigma lens By Greg Walton.

By *Fred Scutall*



VENUS on VENUS

Below M8 Lagoon Nebula. Telescope: Planewave CDK 12.5, Mount: AP900GTO, Camera: STL-11000, Location: Heathcote LMDSS, Date: 22-23 June 2012 [*yes Paulie, it was clear!! Best of the Year!!*], Luminance Bin 1x1, Ha Bin 1x1, RGB Bin 2x2, Exposure lengths Ha 1200sec, Lum 600sec, RGB 480sec. Processed in CCDStack, Photoshop, and Pixinsight.

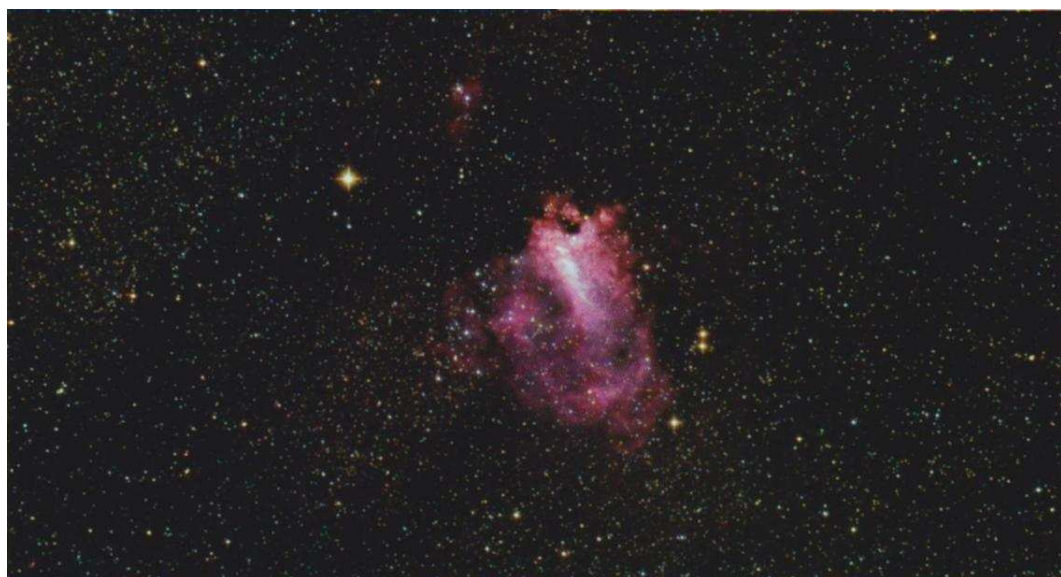
By Steve Mohr



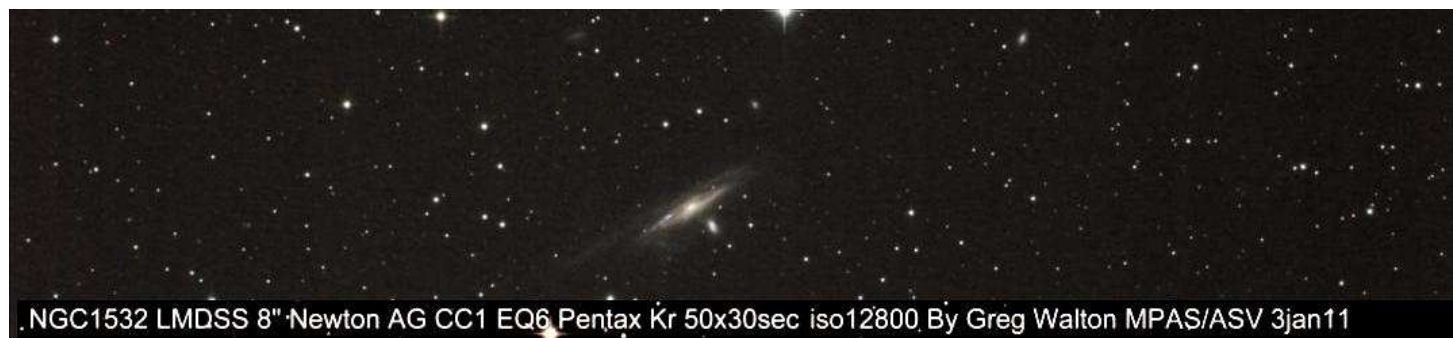
Right *Paul Albers* gets his photo of M17 the Swan Nebula in Sky & Telescope.

He used his ever reliable Pentax Kx DSLR with 8-inch AG Newtonian on his NEQ6Pro mount. Exposure time was 30x30 seconds.

Well done!!



Below NGC1532 merging galaxies
By Greg Walton



NGC1532 LMDSS 8" Newton AG CC1 EQ6 Pentax Kr 50x30sec iso12800 By Greg Walton MPAS/ASV 3jan11



Peter Lowe



Brett Bajada



Peter Skilton



Marty Rudd



Trevor Hand



Ian Sullivan



Dave Rolfe



Greg Walton

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

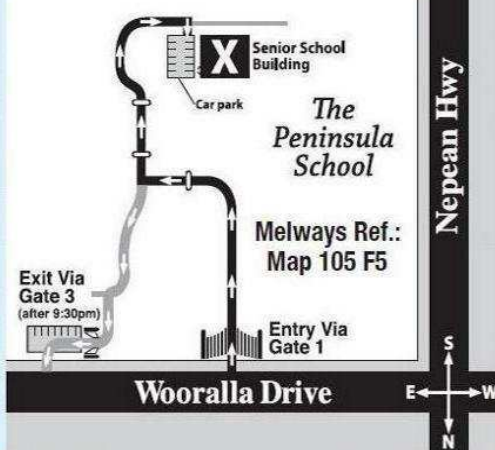
President: Peter Lowe
Vice President: Brett Bajada
Committee: Ian Sullivan, Trevor Hand, David Rolfe,
 Tony Coventry, Fiona Murray, Greg Walton.
Phone Contact: Peter Skilton - 0419 253 252

Secretary: Peter Skilton
Treasurer: Marty Rudd
Public Officer: Rhonda Sawosz
Web Master: Steven Mohr
Scorpius Editor: Brett Bajada

GENERAL 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 gates or Gate 3, off Wooralla Drive.
 Exit is via Gate 3 Only after 9:30pm (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.yahoo.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 9773 0098 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
Phone: 0419 253 252
Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.

