



SCORPIUS

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MORNINGTON PENINSULA ASTRONOMICAL SOCIETY INC.

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

The Society holds a focused general meeting each month for the exchange of ideas and information. Regular public and private observing nights are arranged to observe currently available celestial objects and phenomena. In addition, the society encourages the service of its members for education presentations and observing nights for schools and community groups. Reg No: A268 ABN: 34569548751 ISSN: 1445-7032

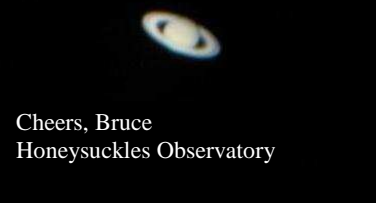


Lunar eclipse in the clouds from the Briars taken with 300mm lens, photos by Greg Walton



Lunar Eclipse from Carrum Downs
Taken with
Pentax Kx & Sigma 300mm Lens
by Fiona Murray

Here's a pic I took through the eyepiece the other night whilst out observing (5 mm EP ... 500 mag) ... A hand-held point and shoot auto snap as it were ... Nice to get a little detail in such a shot...
.... I was pretty happy with it J
.... View visually was better of course.



Cheers, Bruce
Honeysuckles Observatory

SCORPIUS The journal of the Mornington Peninsula Astronomical Society
Newsletter Disclaimer

The Scorpius Newsletter is published online, once every two months for its membership, by the Mornington Peninsula Astronomical Society, for Educational Purposes Only. As a newsletter, this publication presents news spanning a spectrum of activities, reports, and publications in order to keep society members abreast of a variety of events and views pertaining to astronomy. While prudent, reasonable effort has been utilized to verify factual statements made by authors, inclusion in this newsletter does not constitute or imply official MPAS endorsement. All materials (except previously published material, where credited) are subject to copyright protection © 2014, Mornington Peninsula Astronomical Society

SOCIETY NEWS

By Greg Walton

Camberwell Grammar - Hi All, Well the school viewing night for Camberwell Grammar was a total wash out last night. When it comes to weather "Boy can we pick 'em". I went ahead with the Solar System talk (long version) which went down very well. Lots of questions and the teachers eventually had to call a halt to proceedings. Despite the weather the students obviously enjoyed the evening. They were still asking questions as I was leaving. Oh well, when it comes to weather it's better luck next time. Cheers Peter Lowe

March public night - Hi Everyone, While the weather looked decidedly ominous last Friday, with very black clouds all around, the evening optimistically went ahead with 43 attendees plus a good number of members helping out, including newcomers learning the skies. Trevor Hand and Peter Lowe gave the talk inside, while outside with instruments and helping out were Rod & David Brackenridge, Greg Walton, Alex Cherney, Sean Blake and family, Peter and Chris Skilton, John & Marj Cleverdon, Fiona Murray, Pearl, Ben and other kids, and others I may have missed and who no doubt put their names in the observatory log book during the night. Others had just put in their application for membership on the night, or were existing members but attending to hear the talk and renew. The skies cleared during the talk, as tends to happen at the site, and by around 9:30pm were clear almost from horizon to horizon. Most reasonable views were had of the Moon, Jupiter and 4 of its moons, Mars rising in the East was incredibly red/orange in colour and probably helped by the fires from Morwell, the Orion Nebula, Omega Centauri and others. There were several sporadic meteors seen, plus a readily viewed pass overhead of the international space station that was seen by almost everyone present. All in all the attendees were impressed, and we got some great positive feedback on the website content. Regards, Peter

March Society Meeting - seen 20 members in attendance Peter Lowe (president) chaired the meeting and talk on the latest discoveries like the largest star ever found. Ian Sullivan gave his latest talk on sun dials. Greg Walton did sky for the month and showed time lapse video from the messier star party with meteor shock waves and smoke trails. Then Member chatted over coffee.

March Solar Day & members BBQ - seen about 20 member in attendance. The solar day was mostly cloudy but did clear for 2 minutes giving Ian just enough time to do his measurements. 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. No viewing member had a general chat.

Somers primary school - Well it was a glorious night last Friday at Somers Primary School. Mild conditions, no wind, clear and unusually steady seeing. We were the final item for their Science Day that had been going all day long, and had been launched by the Minister of Education earlier in day. The school Principal, and organiser, David Ingham, was positively enthused with the whole spectacle and made a point of looking through all the instruments and speaking to everyone. While Peter Lowe, Trevor and Kathryn Hand kept the folks indoors entertained with meteorites etc., outside on the school oval we had a host of telescopes operated by Paula Ritchens, John & Marj Cleverdon, Peter Skilton, Phil Holt, Kevin Rossiter, Rod and David Brackenridge, Fiona Murray, Alex Cherney and Greg Walton. This international space station gave a pass overhead, an Iridium flash was seen, Jupiter's Red Spot was visible, Mars was visible, a couple of very bright, lasting meteors were seen and Omega Centauri and 47 Tuc looked great once the sky had darkened. Unfortunately most of the kids didn't wait for the telescopes, and we only saw about 50 of them last until dark. They had an impressive time and a big range of instruments to look through. Well the other 300+ kids missed out this time, but we couldn't start much earlier due to twilight. Regards, Peter S

CSIRO night - Forty Eight members of the CSIRO Double Helix Science club and their parents attended the Briars last night, being the first evening after moving from Daylight Savings this year. We didn't have the large inflatable planetarium this year set up inside the auditorium because it had been out on loan to CSIRO in Townsville. But weather conditions fortunately were quite conducive to viewing outside instead. Although there was a cool breeze throughout the evening, and some wispy cloud which tended to brighten the sky with the Moon present, the group was able to see a wide range of objects. Seeing wasn't particularly steady, but was adequate for seeing the near first quarter Moon with its craters and mountains, Jupiter and 3 of its 4 Galilean satellites, red Mars (though no detail was obvious), yellowish Saturn and Titan, Jewel Box, Omega Centauri, Orion Nebula, many constellations and no doubt others. There were surprisingly few satellites seen. Peter Lowe gave a talk inside and showed some meteorites, including a piece of the Cranbourne fall. The organiser, Jason Morvan, used to be a night sky demonstrator for the University of NSW during his studies, so had good familiarity of the skies. Outside in the elements with telescopes were Rod and David Brackenridge, Peter Skilton, Chris Skilton with his homemade telescope that the kids loved pointing themselves, Greg Walton, Fiona Murray with Ben and Pearl, and Vanessa Quigley with one of the site Dobsonians. The binocular viewing chairs were also very popular. Thanks to everyone for making it a most enjoyable evening. Regards, Peter S

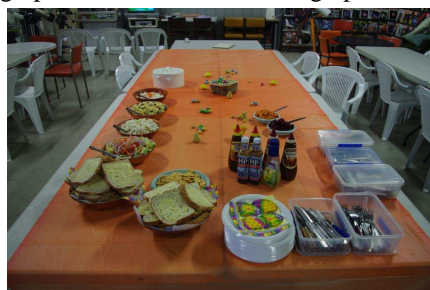
April public night - Now Day light savings has finished, a large number of the Public turned up early. We battled clouds jumping from Jupiter to the Moon, then on to some deep sky objects & Mars, then back to Jupiter again. Members had 3 Meade go to telescope running and John Cleverdon running Sky Drover 18". I was on the lower slab running Sky Venture 18" and Big Blue 8" refractor. Greg

April Society Meeting - seen 20 about members in attendance Peter Lowe (president) chaired the meeting and talk on space travel (Is it really worth it) topics covered were the food, leadership, jobs, social interaction, entertainment and a mix of the sexes. Greg Walton did sky for the month and showed time lapse video from the lunar eclipse on the 15th April. Then Member chatted over coffee.

April members BBQ - As Peter Lowe (President) was at NACCA, Pia & I for buying in all the food but with a Easter theme. Thanks Guys for help with the cooking and thanks Girls for setting up the food and the cleaning up after wards. No viewing due to clouds, members chatted over coffee, Hot cross buns and cakes.

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.



May / 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	CALENDAR			1	2 Public Night 8pm	3
4 Jupiter right of the Moon	5	6	7 First Quarter	8	9	10
11 Mother's Day Saturn at opposition Mars 3deg below Moon	12	13	14 ASV Meeting	15 Full Moon	16	17
18	19 Mars stops and changes direction	20	21 Last Quarter Society Meeting 8pm	22 South Pacific Star Party	23 South Pacific Star Party	24 Members Night BBQ 6pm South Pacific Star Party
25 South Pacific Star Party	26 Venus 5deg above Moon	27	28 Committee Meeting 8pm	29 New Moon	30	31

Monthly Events & High Lights. Watch out for Auroras - Red Days indicates School Holidays

Public nights 2nd, 8pm start - **Society Meeting** at 8pm on 21st @ the Peninsula School

Members Night BBQ 6pm at the Briars 24th

Evening - Moon occultation of Saturn on the 14th starts 8:48pm finishes 10:10 pm

South Pacific Star Party 22nd to 25th May @ Ilford NSW www.asnsw.com/spsp (A few MPAS member are going)

June / 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Jupiter right of the Moon	2 Mercury in M35 5:30pm	3	4	5	6 First Quarter Public Night 8pm	7 Mars right of the Moon
8 Mars left of the Moon	9 Queen's Birthday	10 Saturn right of the Moon	11 ASV Meeting	12	13 Full Moon	14
15	16	17 Mars 1 degree of Galaxy NGC4697	18 Society Meeting 8pm	19	20 Last Quarter	21 Members Night BBQ 6pm
22	23	24 Venus above a thin Moon	25 Committee Meeting 8pm	26	27 New Moon	28
29 Mars 1 degree of Galaxy NGC4958	30	CALENDAR				

Monthly Events & High Lights. - Watch out for Auroras - Red Days indicates School Holidays

Public nights 6th 8pm start - **Society Meeting** at 8pm on 18th @ the Peninsula School

Members Night BBQ 6pm at the Briars 21st **Dawn - Venus above a thin Moon** 24th

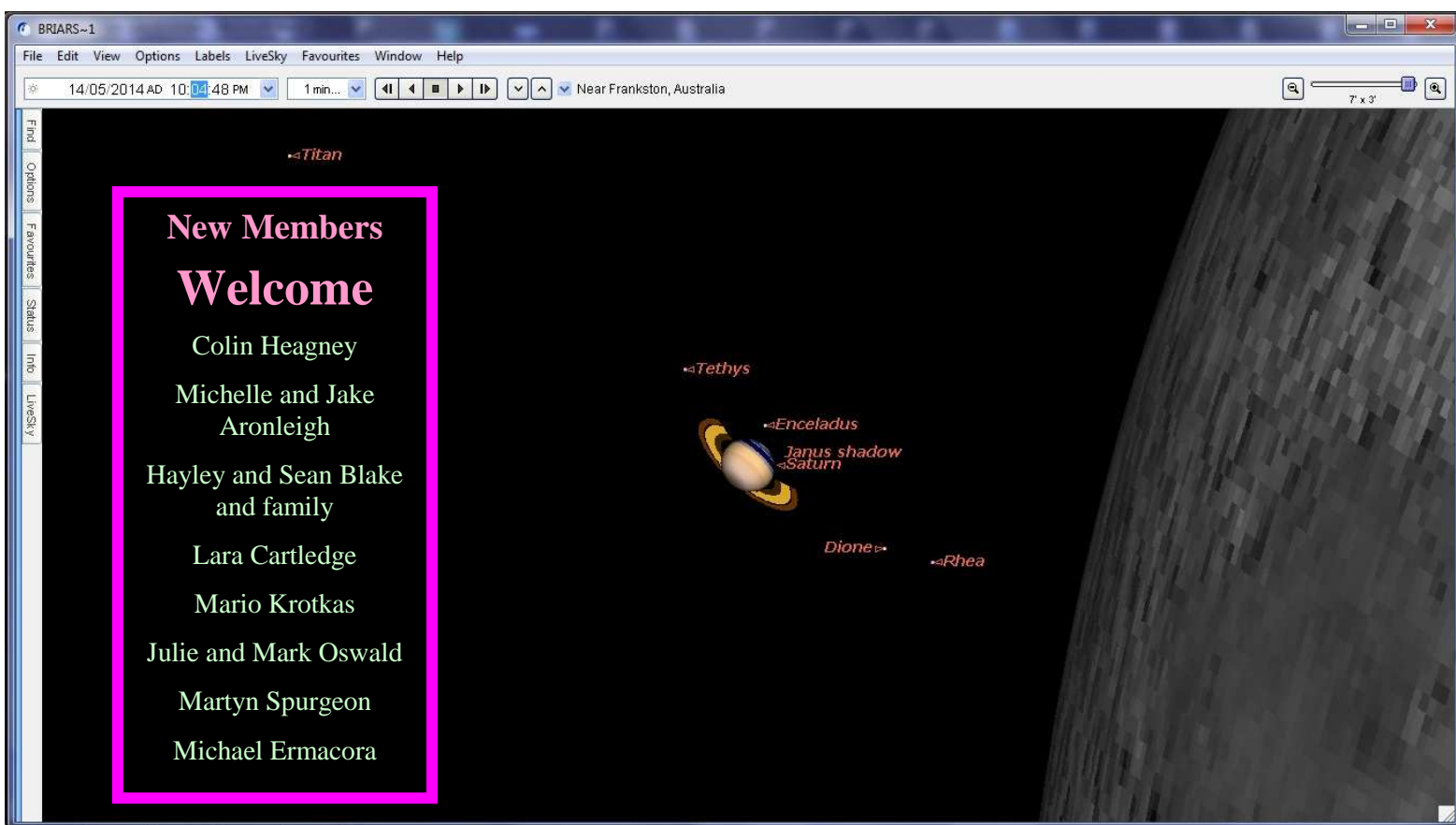
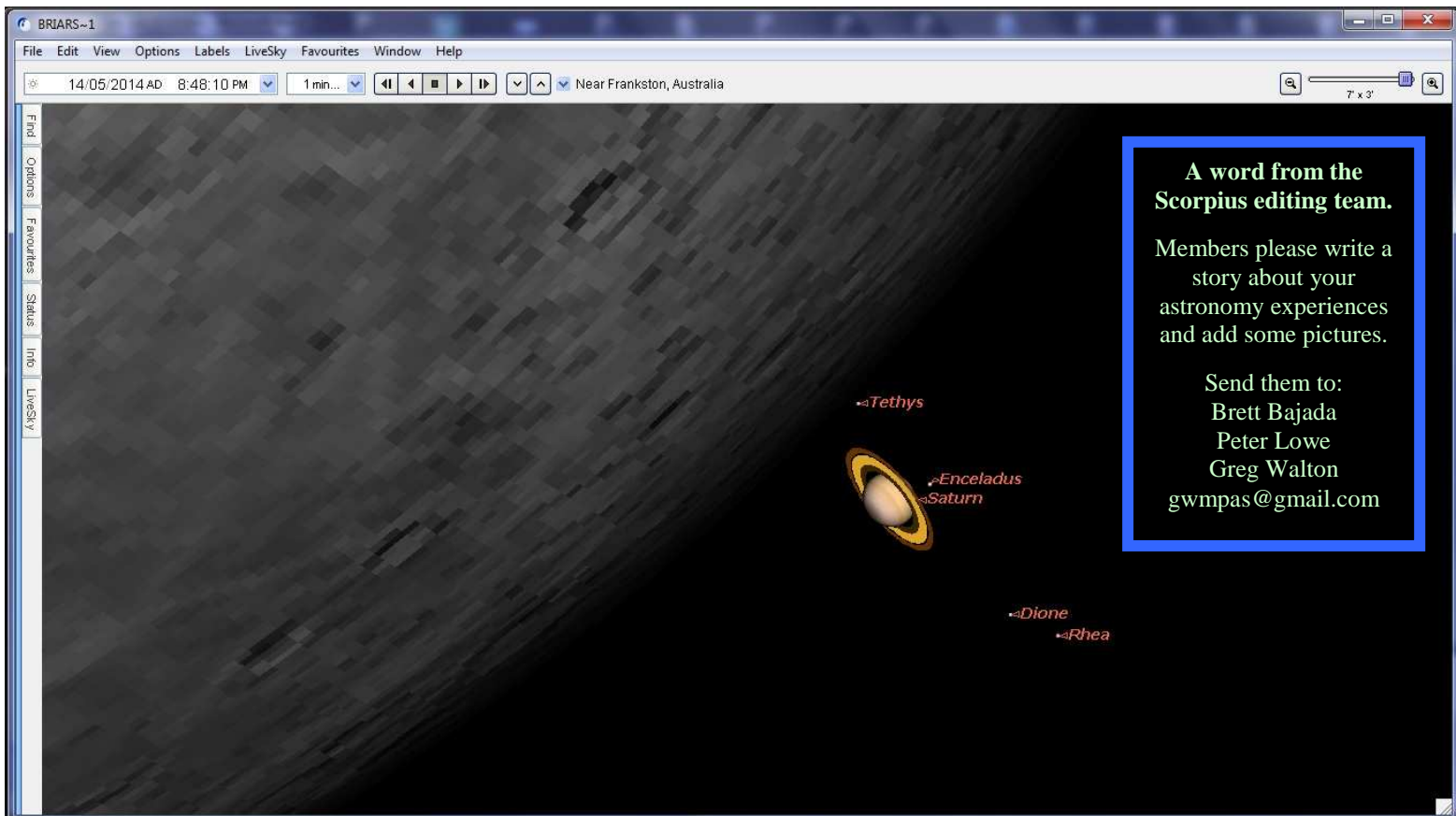
Evening - Mercury in M35 5:30pm 2nd - Mars right of the Moon 7th - Mars left of the Moon 8th

Evening - Saturn right of the Moon 10th - Mars 1 degree of Galaxy NGC4546 1st & 2nd

Evening - Mars 1 degree of Galaxy NGC4697 17th - Mars 1 degree of Galaxy NGC4958 29th

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

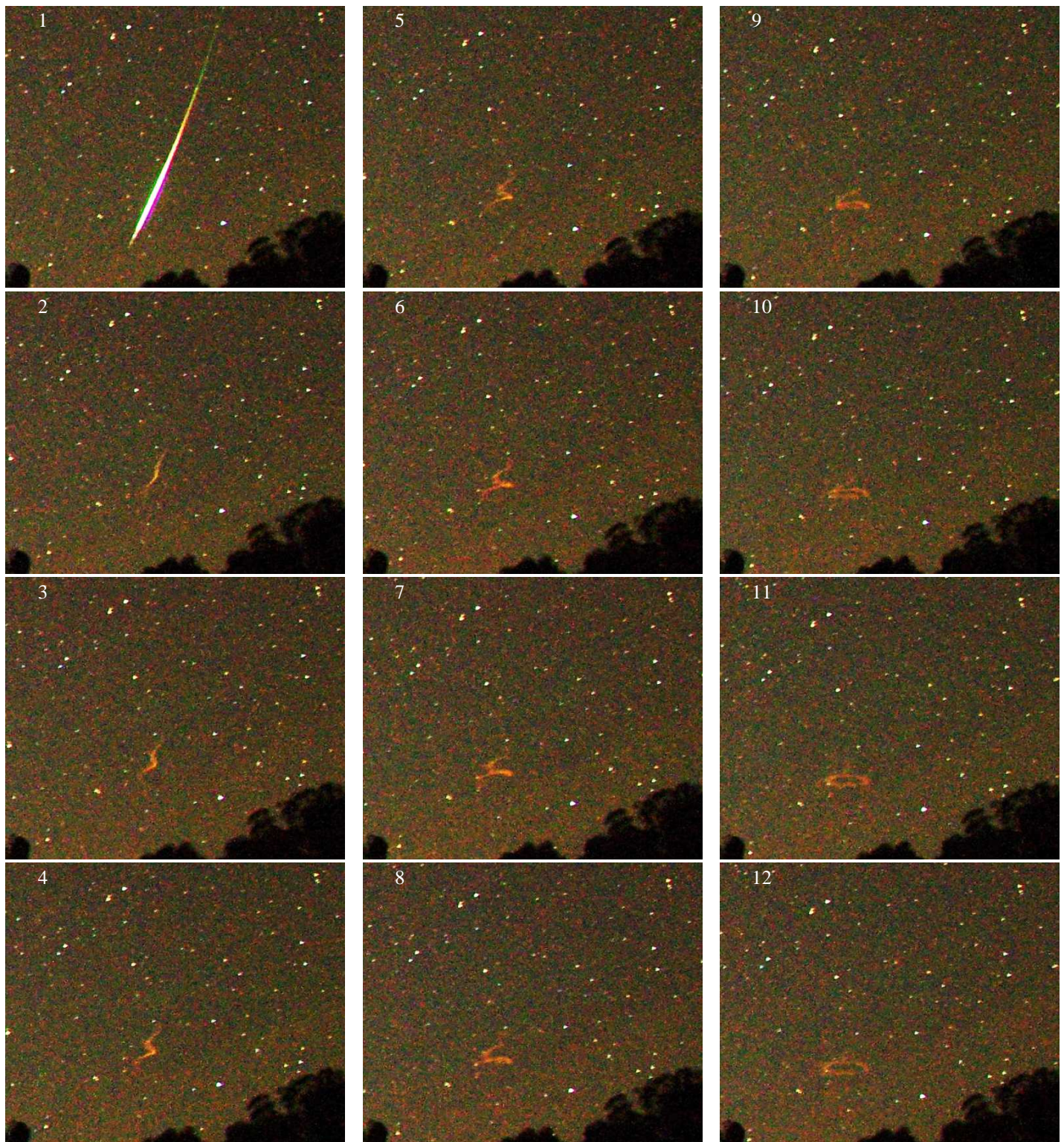
Sky for May we look at the Occultation of Saturn by an almost full Moon on the 14th high in the eastern sky, here is a great photo opportunity to catch this rare event with Saturn next to the Moon. From the MPAS Briars site, Starting at 8:48pm with Saturn's moon Tethys disappearing first then Saturn's rings sliding behind the moon. Then you will need to wait till 9:54pm when Saturn's moon Titan will be first to reappear with Saturn's rings starting to reappear just before 10:00pm, you will notice something wrong with Saturn's rings the top half will be missing for it will be in the Moons shadow. Images below produced on Starry Night by *Greg Walton*



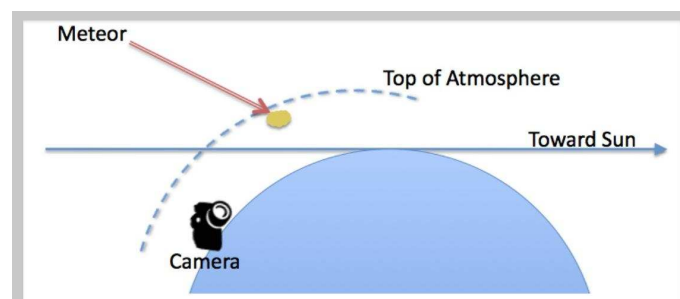
ASTRO CLASS

By Greg Walton & Peter Lowe

Each year the Earth is hit by 65,000 tons of space rocks, most are smaller than a pin head & burn up in the upper atmosphere. Very few meteorites make it to the ground, out of all the meteorites found, about 10% are stony & 90% are Iron/Nickel. The earth gets hit by 50 meteorites each year that are about 1 metre in diameter, most brake up & fall into the sea or remote country side. It's said we all have meteorites dust in our hair & if you run a magnet around in your gutters you will pick up tiny meteorites. Below images of a bright meteor falling to earth leaving a spiraling smoke trail, the meteor was most likely spinning to have produced this spiraling smoke trail. Taken at 5:28am on 3rd of March 2014 in the North/West, 30 second images at 1 minute intervals with my Pentax Kx & 10mm Lens, at the ASV's LMDSS Heathcote. The images below are cropped to about 10% of there original size. (1 to 12)



Hi Greg. I was doing some exploration on the net and I think I know how your smoky meteor videos come about. If the location where the meteor burns up is still in sunlight which can be well after sunset then we see a dark sky but the meteor burn up site is still illuminated and sunlight scatters off the dust cloud. It would be interesting to work out the geometry and see if we can catch others. Cheers Peter Lowe



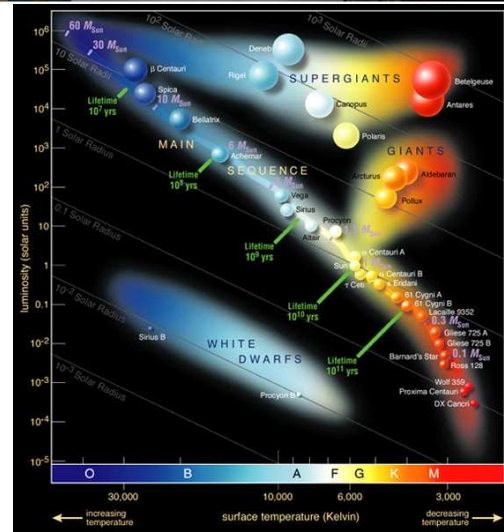


On a moonless night if you sit back and take a good, long look at the stars it becomes obvious that stars are not all the same. Apart from a wide range of apparent brightness's there is also a wide range of colours. In fact there is a whole spectrum of colours. Some stars are red, some are blue and some are pure white. There are even invisible stars at least invisible to the human eye emitting most of their light in the infrared or ultraviolet parts of the electromagnetic spectrum. Some variable stars are deep red. Colour is an important and useful property of stars but to make it useful astronomers need to have a method of defining a star's colour in an accurate, reproducible way. The human eye is sensitive to colour but we are evolved to see ripe fruit and other colour sensitive cues in the jungle environment not to look at stars. When it comes to describing colour this is a very subjective thing to do. Try describing the difference between red and blue to someone. We can only do this by comparing things in our environment such as blood red, sky blue or yellow daffodil. If you want to compare the colour of stars in different

parts of the sky things get a bit more complex. For instance, is Betelgeuse redder than Antares and how much redder? If you ask ten different people you get ten different answers because the difference between the two stars is small and it depends upon each person's individual eyesight whether they can spot the difference. Plus it varies depending upon where in the sky the stars are and just to make matters a bit more interesting the two stars can randomly vary both in brightness and colour. Further the human eye is very bad at discerning colour in point sources which is why visual variable star observers often de-focus their telescopes to gauge colour differences.

These were vexing problems in the mid to late nineteenth century as physicists came to grips with the new sciences of photometry, spectroscopy and of course astrophotography. We know that things start to glow as they get hotter changing from a deep red, to a comfortable campfire yellow on eventually to blue-white hot.

Photometry is the process of measuring the amount of energy emitted by a hot body. Early photometers allowed astronomers to quantitatively measure the brightness of stars. They quickly realised that a star's apparent brightness depends on its colour. Measuring a star's absolute brightness or luminosity had to wait until spectroscopy came along. The first colour measurements were thus determined using a coloured filter to determine a star's brightness in the red, yellow and blue parts of the spectrum. Today we use a similar although somewhat more standardised measurement called a "Colour Index".



Spectral Class	O	B	A	F	G	K	M
Temperature (K)	50,000 - 28,000	28,000 - 10,000	10,000 - 7,500	7,500 - 6,000	6,000 - 4,900	4,900 - 3,500	3,500 - 2,000
Colour	Blue	Blue-white	White	White-yellow	Yellow	Orange	Red

As shown above a star's surface temperature determines its base colour. The star's hot gas outer layer emits radiation in a well-defined way known as "Black Body" radiation. This means the intensity of emitted energy varies with wavelength such that a hot star emits relatively more energy at blue wavelengths than at red whilst a cool star's emission peaks at red wavelengths. If the intensity is measured at a specific wavelength or narrow range of wavelengths then it can be compared with intensity at other narrow wavebands. The intensity is expressed as apparent magnitudes. Rather than just have one apparent magnitude (m) measured across the entire visible spectrum we can use filters to restrict the incoming light to narrow wavebands. If, for instance, we use a filter that only allows light in the blue part of the spectrum, we can measure a star's blue apparent magnitude, mB. (Abbreviated to just B) Similarly if we use a filter that approximates the eye's visual response, which peaks in the yellow-green part of the spectrum, we measure mV or V for a star. If the star emits predominately in the blue end of the spectrum its mB will be brighter than its mV. The colour index is just the difference between these measurements. Hence Colour Index = (mB - mV).

For instance the star τ Cet has an apparent mB of +4.22 and an mV of +3.50 hence its colour index = $(mB - mV) = 4.22 - 3.50 = +0.72$ which means τ Cet is a yellow-orange star. [Remember that in magnitudes the higher the number the dimmer the star] Initially astronomers determined the colour index of stars by taking three photometer measurements in the blue, green and red filters known as B, V & R. The (B-V) and (V-R) indices gave a broad measurement of the star's overall colour. When photography took over, particularly today with modern CCD cameras it is possible to make automated measurements of many stars simultaneously. The broader spectral response of the modern CCD allows measurement in the ultraviolet (U) and infrared (I), so the colour index system used today includes U, B, V, R and I.

(B-V) Colour Index of some common stars

Star	Spectral & Luminosity Class	Colour Index
σ Ori	O9.5 V	-0.24
Achernar (α Eri)	B3 V	-0.16
Vega (α Lyr)	A0 V	0.00
Procyon (α CMi)	F5 IV-V	+0.42
Sun	G2 V	+0.65
Aldebaran (α Tau)	K5 III	+1.54
Betelgeuse (α Ori)	M1 Ia	+1.85

The story doesn't end there however because what we see is not the true colour of the star. Betelgeuse is not as truly red as it looks.

Betelgeuse is some 1,800 light-years distance and there is a lot of interstellar dust and gas between it and us. Cosmic dust is made up of small grains of silicates, iron, carbon; frozen water and ammonia ice 0.1 to 0.01 microns (μm) in size. On its way to us some of Betelgeuse's light is scattered. The amount of

scatter depends upon the colour of the light. More blue light is scattered than red light, which means by the time it gets to Earth more of the blue light has been lost than the red. This also explains why on Earth sunsets are red and the sky is blue. The result is the star looks progressively redder the further you are away. This phenomenon is known as Extinction and is inversely proportional to wavelength. Interstellar reddening must be compensated for in trying to determine the true colour and brightness of a star. If a star's spectral and luminosity classes are known, its absolute magnitude and colour can be inferred. By measuring its apparent colour the amount of reddening can be determined and this can then be used to determine an approximate distance to the star. The distribution of gas and dust is not uniform in space and thus extinction corrections vary from star to star.

Red giants such as my favourite star Betelgeuse are really more orange than red in colour. These stars are also variable stars. Betelgeuse for instance goes through slow pulsations in size as its outer layers are blotted up by radiation from its dense stellar core. Material slow falls onto the surface of the dense stellar core resulting in changes to its surface temperature of the core that in turn lead to changes in the temperature of the atmosphere, which we perceive as changes in brightness and colour.

To make matters worse some stars including Betelgeuse, can change their colour because of changes in chemical composition of their atmosphere. The atmosphere can become sooty and absorb light passing through it resulting in an overall colour change as well as a change in apparent brightness. As light from the star's core surface travels out into space it passes through this atmosphere and is changed on the way. Metallicity is a term used to indicate how much heavy elements a star contains. While stars are primarily made of hydrogen and helium they also inherited heavier elements from their birth plus they make heavy elements as they age. These heavy elements such as carbon, nitrogen can form high temperature carbon molecules such as C₂, CH and CN. These molecules absorb mostly in the blue and violet parts of the spectrum with the result such stars can look ruby-red. They also emit predominantly in the infrared. We know Betelgeuse is emitting carbon rich gases in its solar wind and if our eyes were sensitive enough to the infrared Betelgeuse would appear bigger than the full Moon, even at 1,800 light-years distant.

A small group of extremely red carbon stars such as TX Piscium were originally classified as R and N classes with similar temperatures to K and M stars respectively but nowadays they are collectively referred to as type C (for Carbon). It is worth tracking down some type C stars (mostly very faint) just to see how red a star can get.

Next time your outside enjoying your Irish coffee under the stars give a thought to the processes at work that contribute to the coloured star-studded spectacle around us and of course have fun enjoying your coffee.

2013 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 2013 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 2013-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.

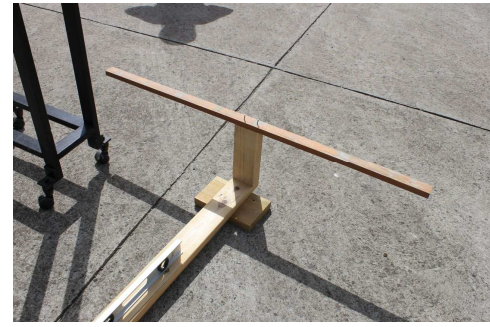
The account details are BSB 033-272 Account 162207. Remember to add your name and details to the transfer so we can identify the payment in the bank records.

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.

MPAS SOLAR DAY Sat 22 Mar 2014, by Ian Sullivan

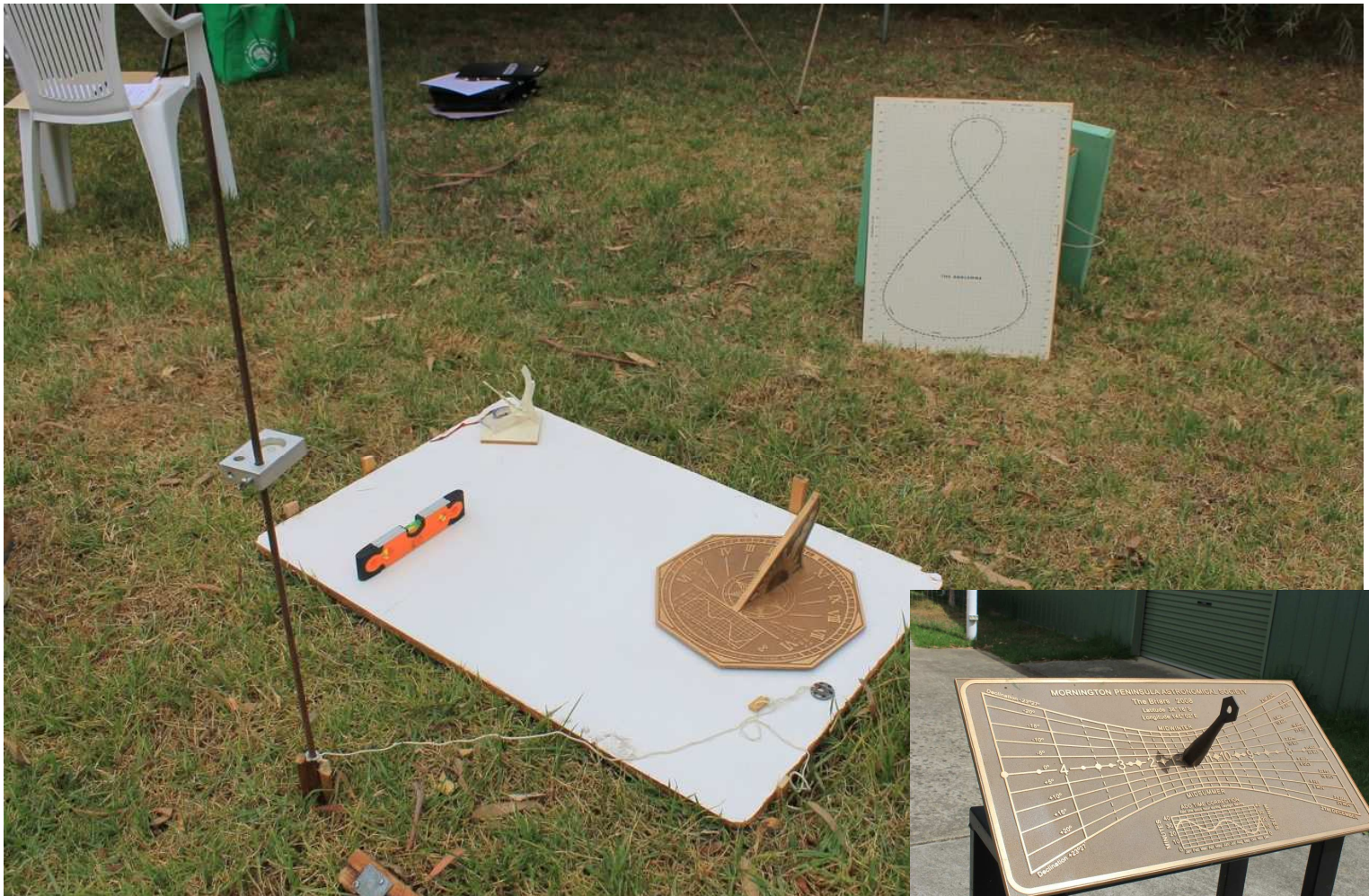
The day did not bring glorious sunshine, mostly clouds, which parted momentarily at 11.53, then steadfastly prevented a shadow showing us the meridian at sundial noon. With only myself, Jamie Poole, and Jim Blanksby we had just enough manpower to set up the shadow stick and the horizontal board. To rival our efforts, President Peter Lowe had brought his hastily constructed, and calibrated, 'Egyptian dial' on which we saw much later, a shadow and time revealed as also on the MPAS Polar Dial (both in photos). However while the shadow stick will only reveal the Sun's declination at sundial noon, the polar dial clearly shows all day the Sun with a declination of zero, being at the equinox.



Later indoors we watched solar sunspot data gathered by President Lowe on the screen, which is available by internet regardless of local weather conditions. You can identify individual spots on a daily basis, and see prominences develop, without employing expensive instruments like Jim Blanksby's Lunt with hydrogen alpha filter (which he brought along on the day). Should we have Solar Day?



You may as well ask we have a Society when we could all stay home with our computers and telescopes? I think once a year is not too often to put our own astronomical practical skills to use in the daytime sky. However we could do it earlier in the year as probably a better time to get reliable ? sunshine. Next year we could get a better turnout of MPAS members?



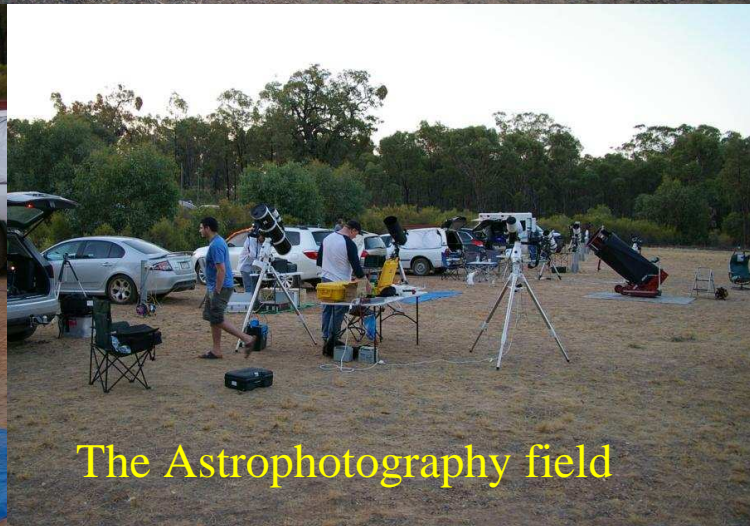
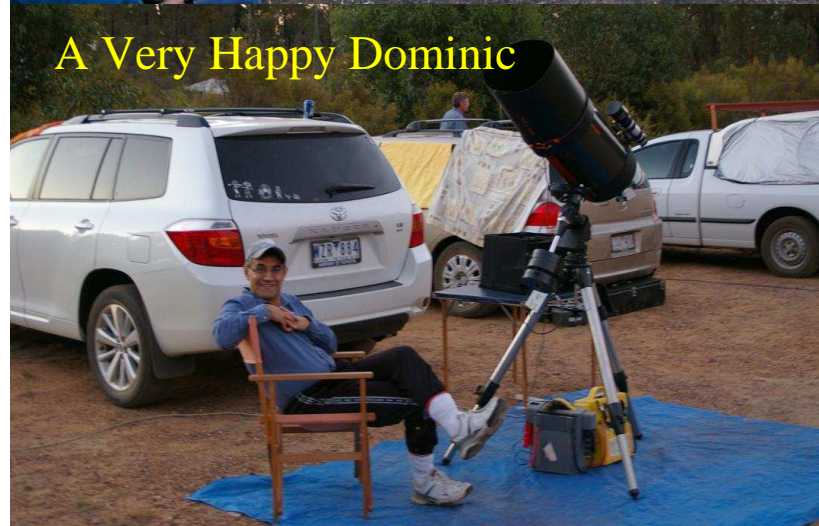
MPAS at the ASV's Messier Star Party, 1st March 2014, *By Greg Walton*

The annual Messier Star Party hosted by the ASV is held in March, when most of the Messier object can be seen in the sky. Dominic, Alex, Steve, Jim and I travelled to ASV's LMDSS under a cloudy sky, rolling into Heathcote the clouds had all disappeared. As usual the Loins club were on deck cooking hamburgers and selling ice creams. 2 young girls won the door prize, a 6 inch telescope on a EQ mount. Perry Vlahos did the Astro trivia, then took 100 members of the public out onto the field to show them the night sky and then they roamed the field checking out all the telescope with there wonderful views of the heavens. I had my time lapse cameras running 2 nights and captured a nice meteor smoke trail, see *Astro Class*. We had clear skies and all had a great time on these warm and barmy night.



Jim Blanksby

A Very Happy Dominic



The Astrophotography field



See time lapse @
Messier star party 2014 <https://vimeo.com/98616990>

MPAS are all set up.



Snake Valley Astronomy Camp *by Dave Rolf*

The Snake Valley Astronomical Association held its recent star at the start of March. This party as normal is well represented by MPAS members, with this year no exception.

Snake Valley is a four night camp that has good facilities for camping, adequate power on the field and cooking / shower amenities. There are also about 10 basic school camp style cabins there that are still standing from the POW camp it use to be! The observing field is located above the lake (Crystal lake) and that normally provides amusement by itself during the days with all sorts of Remote Controlled devices flying, hovering and skipping over the edges.

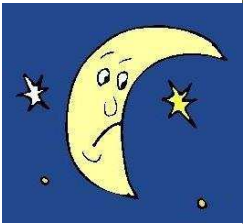
The weather looked good for this camp with fine days, but each night we had mystery clouds appear with no explanation, much to the humour of our associates at the competing ASV site. This year people learned from their mistakes and used sunscreen to avoid becoming night beacons!

Despite the cloud all had a good time and a few nice images were taken over the various nights. We even had a full moon during the daylight hours thanks to Paul Albers. I was under immense pressure to produce some good images as after booking I had discovered (well remembered) I was skipping out on my 10th Anniversary - opps.

The next camp is during the new moon in November, more details can be found on the iceinspace website.

MPAS Members

Group Shot



Bruce Renowden ... My Astronomy Story

In The Beginning

In life, you never know what might be just around the corner, or in my case at the bottom of the stairs. I can't recall the date, nor even with certainty the year. What I can remember however, was the moment that started it all. My best guess of the time would be around 1967, when I was thirteen. I was living in a comfortable two storey house in Mentone, close to the beach.... Mundy Street, number 12 (it's a different house there now)

School was next day. On this night and well after dinner, mum and dad were watching television in the lounge room. Nothing unusual about this routine. I had just come downstairs and turned into the kitchen. I didn't turn on the light - there was sufficient to see what I wanted to do, whatever that was. My short journey to the kitchen sink - one which would ultimately lead me on a long voyage of discovery, had something unexpected in store for me this evening... It was the image of a glorious full Moon welcoming me. That very moment is still crystal clear in my mind today. Facing east and with a large window looking out to a dark and distant vista, the kitchen had an ideal orientation. Suburbia was a lot darker in the 1960's and with a deep back garden and not a stray light to interfere with the view, a Mentone back yard with the added advantage of being near the bay, might almost have rated as a decent "half dark sky site".

For those of us living in suburban Australia, a view of the Moon is a pretty common-place event... quite unlike I would imagine, a resident's view from Tokyo or London. And as a teenager who had grown up in these night friendly areas, the Moon was nothing new to me. But *this* night distinguished itself as being very different. When I looked out and saw it in full glory, I was instantly taken in by the beauty and awe of it all. Why hadn't I been impacted upon similarly a month/a year earlier? ... Well that's just the way life is, isn't it? They call it "timing", or "being open" or "ready" or some other term allowing for a moment of "profound insight". Leaving english, psychology and philosophy aside, whatever it was, this was one of those "ready" moments for me. That night, the Moon "got me in" ... simple as that.

I interrupted dad's TV viewing to ask if I could borrow his binoculars (... mum and dad have now long ago passed on, but I still have those binoculars). I then spent a considerable time that night looking at this stunning object. It's surface features fascinated me. The craters, the "seas", those formations that looked like mountain ranges - another world with no clouds, and so clear to see from Earth ... it was our glorious Moon. I wanted and needed a closer look!

The Tasco ... A Teasing First Step.

Dad was terrific. He could see I was genuine with my new found interest in astronomy and shortly after bought me what I would grandly refer to as my "Tasco telescope"
(probably bought from Hearn's Hobbies in the city ... the *serious* boy's toy shop!!)

This 60 mm refractor was a real thrill. It had much more power than dad's binoculars and was mounted on an altazimuth mount so was steady. It came with 3 eyepieces and a barlow lens (which frankly, provided uselessly high mag. for this 'scope!!!)

My recollection now of these observing days is patchy, though I remember them to be exciting. If my memory is correct, I limited myself to mainly observing only a handful of objects - these being, the Moon, Sun, Jupiter, Saturn, Venus (and Mercury?). I was fortunate having a clear view to the west and so the latter two planets were available to me after sunset... (certainly, I was to observe Mercury later). The moon-like phases were very interesting.

I must also have looked at other objects - star clusters, the Orion Nebula etc. the Milky Way bright areas, but I can't recall this in detail now. I do remember having a friend* at school who had a similar size telescope and we would talk for hours. I know we both dreamed of owning a fabulous and "much bigger" (!!) 3" refractor on an equatorial mount that was advertised in one of the magazines. Ha! We thought this telescope would solve all the challenges of needing more aperture!!!

**(Noel Button was this friend's name - he'd be 60 now ... and he lived in Frankston at that time... anyone ever come across him through astronomy? ... FAS/MPAS?)*

My "Tasco telescope" of 60 mm aperture and uncertain optical performance left a lot of room to "want to see more". "Tasco the teaser" ... had worked.

.... "Where's dad... ?!"

One Giant Leap From One Small Step!

I have to say how lucky (and I hope at the time, grateful) I was to have had a dad who recognized my keenness on a pursuit he obviously thought worthwhile, then making the resources (the money!) available for me to indulge further in my hobby. The next telescope I was to own, I still have. In fact, I have only just got the mirrors back from being re-coated by Wayne Sainty of Sainstech Ion Beam Systems in NSW. ... The next step up from the Tasco was "one giant leap".

We leap-frogged the 3" fantasy I'd had earlier, in no uncertain terms. I read further and discovered better bang for your buck lay in the domain of the reflectors. I was not particularly scholarly nor sophisticated in matters astronomical in those days (and truth is, I still probably only know the basics today) but a little knowledge from a zero base can go a long way.

Following combing the Trading Post under the appropriate section, I found a new hand-made telescope with a mirror ground by its amateur astronomer maker, of 8 inches, on an equatorial mount. This seemed enormous, compared to the Tasco it was destined to replace. The maker's name was Ken Nightingale, from Coburg. We asked him to bring the 'scope to our house one night so we could see its performance. He obliged. It was made of steel and was very sturdy. Ken told us that up until that time, he had personally hand-ground the largest mirror by any amateur in Victoria up 'til then ... an 18 inch. (When I recently took the primary mirror out of the telescope for its re-coating, I only then noticed for the first time its maker's mark - a capital "N" scratched into the back of the mirror ... a nice touch after these years not only giving it greater importance ... but the memory, greater significance)

He was asking \$230 for this telescope – an appreciable amount of money back then. The receipt, which I still have in the solid cardboard eyepiece box, is dated 20th February 1969 - the night Ken brought it along and we bought it (dad got it for \$215)

I will never forget the 5 objects Ken showed us on that night. Conditions must have been ideal and anyone who knows anything about the big ticket items could easily anticipate the impression this famous group would make. I/we, were captivated.... Imagine, after the Tasco, sharp and beautiful images of the following:

- A splendid Orion nebula with its green hue
- Tarantula nebula – superb
- Omega Centauri – no words necessary
- 47 Tuc – ditto
- Alpha Centauri – the spectacular binary, but very open back then, unlike now

The eyepiece he used gave 65 magnification. The 'scope is an f7.

*3 Eyepieces And
8" Telescope
Receipt 20th
February 1969 ...
One Giant Leap!*

I used this scope regularly while living in Mentone until 1975 and occasionally recorded observations... and again later when I lived for short stints in Cheltenham and Highett in the late 70's and very early 80's. In truth, my astronomical "vocabulary of objects" increased only a small amount, during this time. I became more pre-occupied with other night time pursuits ... "Starry" and mysterious objects which also blinked in the night, but more earthbound...(!)



First Recorded Observation – Jupiter 8.00pm 7th May 1970

Since that time, life for me has been in the inner suburbs – and places very unsuited to astronomical viewing – no garden, or sky vista, unfortunate street lighting, or a combination of everything! It's only since acquiring my little place on the Ninety Mile Beach and a few other subsequent events, has my interest been re-ignited. At "The Honeysuckles", I have land and dark skies.

More Scope – More Scopes!

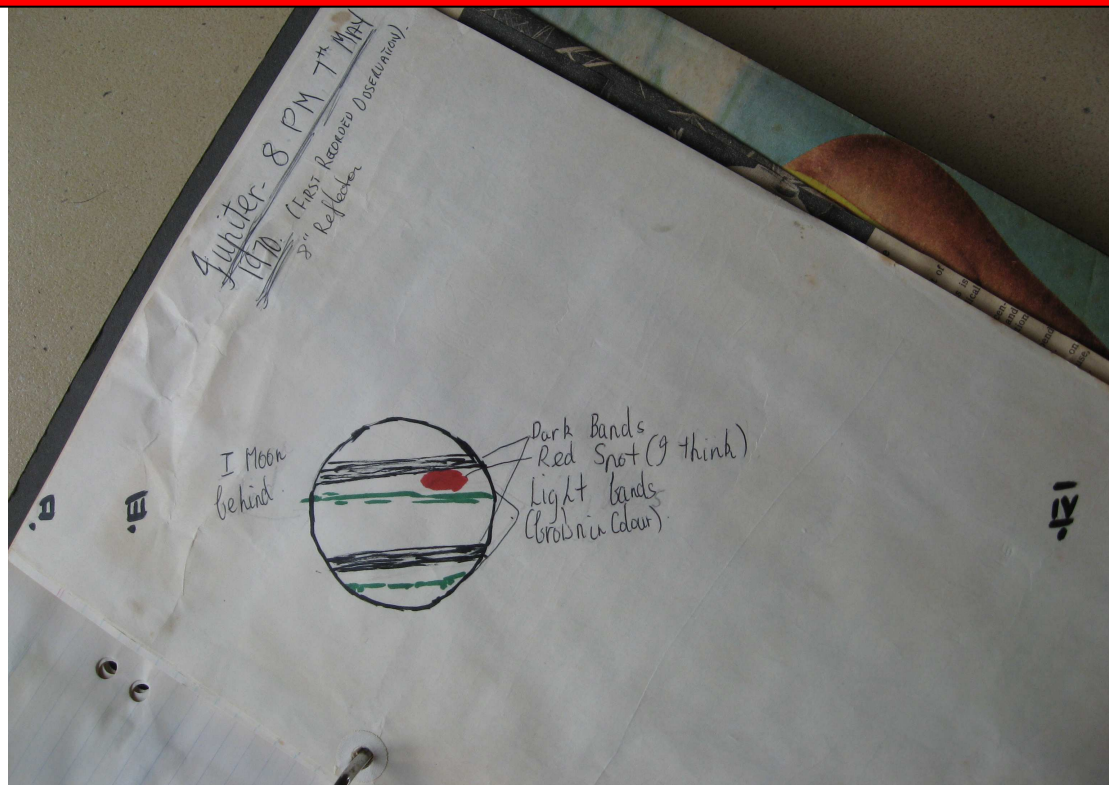
After speaking to Cris Ellis at Astronomy Alive in early 2011 on a routine call about cleaning my 8" mirror, I ended up buying a hand crafted 10" Newtonian (Dob) and a William Optics FLT110 refractor from him ... about three months apart. The idea of the refractor was for photography later on, plus I liked the idea of the motorized Go-To mount.... both, quality instruments.

At "Honeysuckles" with Ken Nightingale 8" reflector (not original finder) ... WO FLT110 ... 10" Reflector from Cris Ellis... (now sold) 31st May 2011

At this point, I realized a lack of research on my part, went against me. The 10" was not in any way noticeably better than my trusty old 8" ... Side by side comparisons revealed a similarity which caught me by surprise. It proved costly. In hindsight, I should not have bought the 10" (probably not the first person to make a similar mistake!!!)

Things then started to accelerate. A friend of mine spotted this fascinating article in the Leader newspaper about a "local" fellow who had won this prestigious international astronomical photography award. Bernadette thought it would interest me and gave me the article. (Bernadette herself regularly mislabelled my telescope a "microscope" and thought the fascination of stars was limited to looking up when lying on her back on a trampoline and staring up at a dark twinkling sky ... I agreed, but also insisted there was more – perhaps herein lay the end of the beautiful binary relationship :-) ...)

In any event, I was very interested to read and enjoyed the coincidence that this *celebrated photographer*, lived in Mentone – the place where my interest had all begun. I immediately sent Alex Cherney an email and ten minutes later to my delight, he replied. A trip down to the next Mornington Peninsula Astronomical Society (MPAS) public viewing night at the Briars to meet the man and look through his impressive 'scope, occurred soon after.



The People You Meet

A join up fee to MPAS was paid on the night. The crowd was friendly and it was the first time I had ever spent any time around anyone else – as a group, interested in astronomy. The look through Alex's scope alone was worth the \$50 I thought! (should have just given it to you, eh Alex!!!???) I saw the Saturn Nebula, 47 Tuc and Jupiter ... all very impressive.

The ubiquitous and ever-helpful Greggy Walton and tireless Peter Lowe became quickly recognizable identities on my infrequent visits to Briars' catch-ups (I live a fair way away). But of course Jamie's "pav's" have probably achieved greater prominence than any of the stellar experiences behind the eyepiece ... ☺

Outside of the club, last year at a Monash lecture, I had the very good fortune to meet, by chance, Russell Cockman while sitting in the audience. We live in the same area and nowadays catch up regularly for a jolly good meal and a sip or two (or three, or ... best I leave it there I think). A wag and some fun, I very much enjoy Russ's knowledge of the stars. Talking red giants over a bottle or two of red seems well, somehow appropriate. Hmmm... what's a good galaxy beverage I wonder??)

It's Never The "Final" Frontier ... Or Is It?

Meeting the above people and being in the environment has had its effects. The fanciful idea of buying a larger 'scope culminated recently in the purchase of a second hand 20" SDM Newtonian, with all the works. Peter Read is a consummate professional craftsman and before I took possession from the previous owner in NSW, Peter had it back in his workshop to do some very useful upgrades. Both mirrors have also been re-coated by Wayne Sainty. The f5 is a big telescope and not easily housed if one wants to keep it in one piece and not re-assemble it each time for use. A large shed has now just been completed down the beach to wheel it in and out.... very handy indeed. This shed will also house the other scopes (the 10" has been sold), as well as much needed useful general storage.



Honeysuckles Arrival... The Final Frontier? Purchased Second Hand From A Private Seller In NSW, SDM Maestro Peter Read Delivers The "As-New" Upgraded SDM 20" f5 ...

27th October 2013..Astro Apprentice "Kipper" looks on in bemusement..("where will it end?")

The scope is still new to me, but early views have shown that when conditions are favourable, quality and aperture have some great rewards in store. Another new journey is just beginning. I'm lucky. It's looking through the kitchen window all over again.

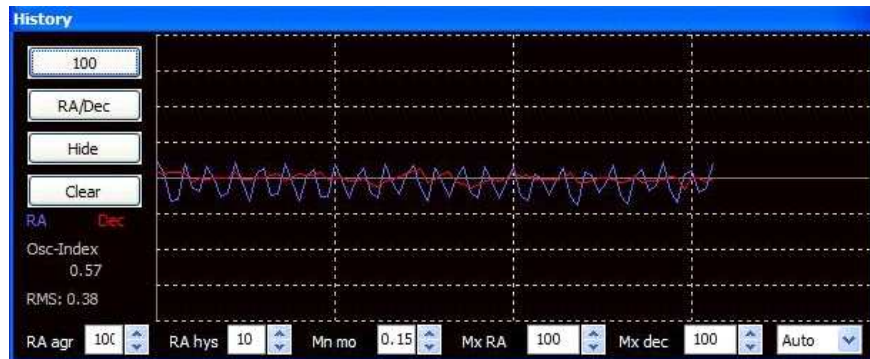
Saturn's rings are opening widely and it will be high in the sky. I can't wait. 47 Tuc, the Tarantula and the Orion nebula are breathtaking – better than ever...

I spare a thought for dad I wish he could see them again. But then, hopefully, he has the best views of all. Thanks again dad.

Bruce Renowden 18th March 2014

Guiding - Cable Management? *By Steve Mohr*

When you're at your favourite dark sky site, you've just completed your polar alignment, you've now framed your object, and you're just starting up your guiding. But, your guiding graph is looking terrible. What is causing the problem? Too aggressive guiding settings, poor atmospheric conditions, was it a bad training routine?? In the dark, there is another problem that you may not be able to see happening. Even in the daylight, the issue may not be so apparent.



The above graph depicts a perfect example of cable dragging/ snagging. A bouncing affect is introduced.



The above is what we are trying to avoid! Very subtle elongation in star shape uniformly seen across the ENTIRE FIELD.

One significant issue is cable management. After now years of experimenting, I'm happy to share the optimum configuration I have now evolved to. The best cable management is to have no cables at all! Hmmm, but in reality, we normally need at least two to three [2-3] cables going to the mount:

- The USB cable - for all our data communication,
- 12v power supply, and
- ST4 guider cable [if not using ASCOM].

Some mounts have ingenious cable management systems engineered into their design, but for the most of the mounts on the market, the user has to define how cables are managed.

Here are some suggestions...

- Limit number of cables going to the mount

Normally astro-imagers require at least two cameras and dewing heating control at a minimum. The primary camera and the guiding camera each require a USB cable, with the main camera also needing a power supply. On top of this, the

primary camera may have a filter wheel that needs power and a USB cable too. In this case, you will find that up to three [x3] USB cables are required, plus three [x3] 12v power supplies [Primary camera, filter wheel and dew system]. Even if the dew controller was mounted on the tripod, or mount, you would still need to get the power cables to the dew straps. The more dew straps, the more power cords you need, as each dew strap requires a specific power setting for the object it heats.

If you supplied directly each device with a dedicated cable, you would need up to five [x5] cables to run the equipment. Quite frankly, this is not efficient. No matter how you handle this number of cables from the telescope to the ground, you risk binding of the mounts smooth operation.

Recommended

For astro-imagers, mounting as much as you can on the telescope as is possible will reduce the amount of cables needed [this strategy assumes you have sufficient payload available]. Trying the following:

- Target the supply of one (x1) 12v power cable, and one (x1) USB cable.
- Acquire a 12v powered USB hub to mount on the scope. From here, you can control/ connect all devices upon the scope.
- Buy or make a 12v power distributor [preferably fused per connection] for multiple devices. From this device, you can then power the USB hub, camera's, filter wheel, and dew control system.
- Consider buying a OEM product, like the Mount Hub Pro



Note, the above is an early evolution of my cable management.

- Careful placement of the equipment upon the scope

If you decide to acquire devices for placement upon the scope, you need to ensure these are centrally positioned. Remember the 3D balancing effect of placing everything on one side of the scope. Try to position devices evenly on both sides, as well as centrally. All with the aim of making sure the balance of the scope+equipment is right.

At your local hardware store, Velcro will be available. Velcro is a great tool for securing devices to your scope. It allows you to remove each device, and reattach them when needed. A hint here, use a hair dryer to warm up both the surface of the scope, and the tape before applying. This warming up of both surfaces results in great adhesion. With Velcro, if you later decide to sell the equipment, the Velcro can be removed with no marks being left on the scope.

- Combining and protecting the cables from the scope down to the mount

Spiral binding or spiral sleeving, clear and black transforms the singular loose cables into a flexible loom. These spiral bindings provide protection to the wires from snagging to chafing. When using these products, it is SO important not to pre-bind the cables together with tape or cable ties. Flexibility in this loom is paramount, and any internal binding with cable ties, etc, will make the loom stiff. We do not want a stiff loom, it needs to be flexible.

To ensure a flexible loom is achieved, select a spiral binding that is much larger than the group of cables. A tight spiral bind loom will also result in a stiff loom. The type of spiral bind is also important, with a thicker product being far superior to a thinner product [see below].



Nice strong wall thickness.



**Note the wall thickness - too thin!
This will not support the loom.**

To terminate the ends, I found you can tape the ends off to the cable, to ensure the spiral binding doesn't slip down the cables. But remember, no internal binding along the cable length.

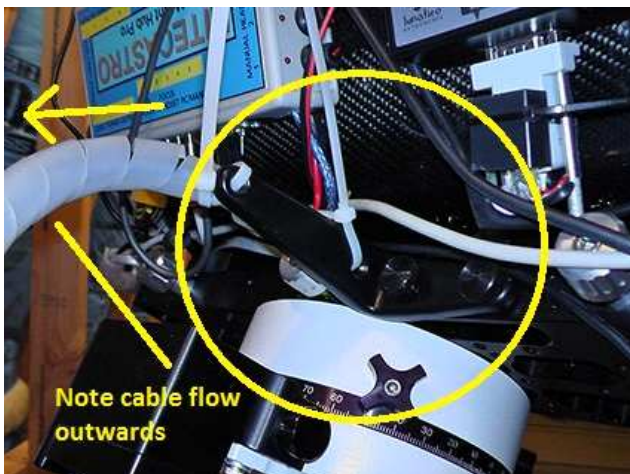
- Mounting the cable loom from the scope to the mount

This is another very important aspect to bring the whole concept together. The idea of optimising the cable management is that the mount can be moved from one orientation to the next without restriction, and most importantly, that whilst tracking, no bouncing is induced by restricting cables.

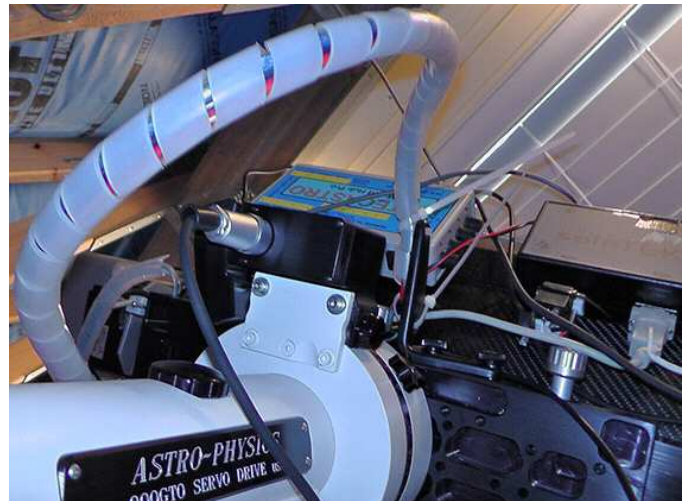
Starting at the top, working down...

At the scope, all cables should be routed to the centre line of the scope, and generally, directly above the declination axis of the mount. From here is where the cable needs to traverse down. But, the cables should not just drop directly down from the scope, they should be managed out and away from the side of the dovetail, say 100mm to 200mm out. This ensures the cable is wide of moving equipment, like the dovetail to the RA, or a sticking out clutch handle.

There is no one way to do this, and you'll need to devise a solution to suit your equipment. See below some images of mine...

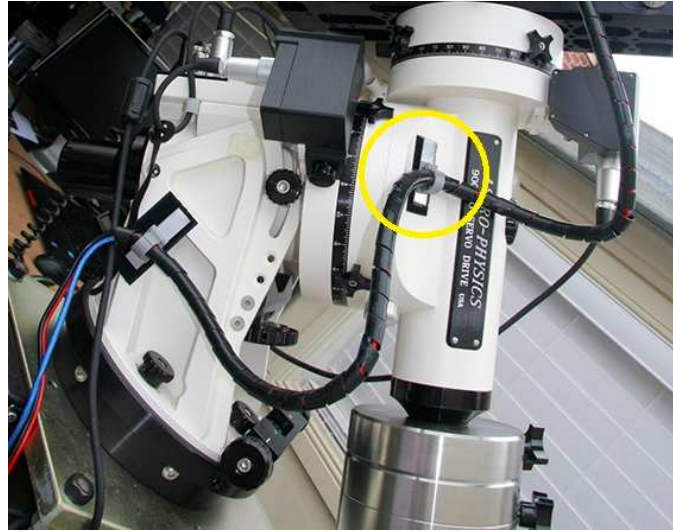


Current spiral binding selection that is producing excellent results.



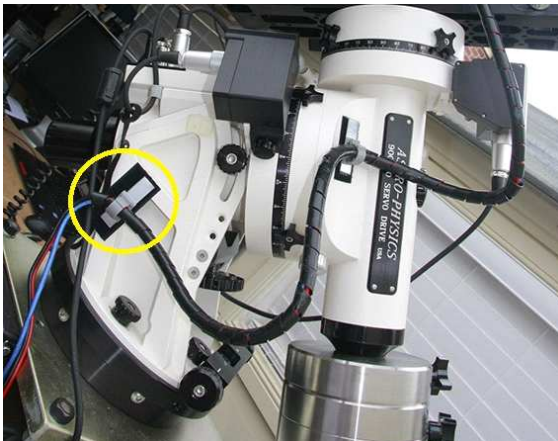
- Notice, the cable is encourage to flow outward by the use of the arm [in this case, and angle bracket]. From the arm, the cable should radius down to the second connection point - the RA swing arm [not really sure what to call this part]. This is section of the mount shown below...

Here you can use a hook of some sort to loop the cable to. To connect the hook, I found using Velcro again the best lasting solution. Whereas, double sided tape solutions seem to be very unreliable, with these all failing after a short time frame. Once you have decided upon the right hook for you, and the way to secure it, you need then to determine the right length of loom to leave free above the hook. To work out the minimum length needed, you will need to rotate the scope to all positions, and especially north on the eastern side and western sides. These two directions will place the maximum demand on the looms length and flexibility.



Once you have worked out this length, you should mark this position on the loom for future reference [so you don't have to work it out again].

Next, you will need to work out the minimum loom length from the middle hook position to that of the next hook that will be located on the mounts lower fixed body. See position below...



Make sure to achieve a nice a smooth flow of the loom. Note, the black spiral bind shown above was purchased at Jaycar, BUT was TOO thin a material. This black spiral bind has been replaced, as it caused snagging. Thicker material will not lose shape, nor easily snag.

Again, place a hook in the most convenient position, and test the loom length required. Once done, mark this position on the loom for future reference.

Now the loom should be secure, from the scope down the mount, to a fixed position on the lower mount area.

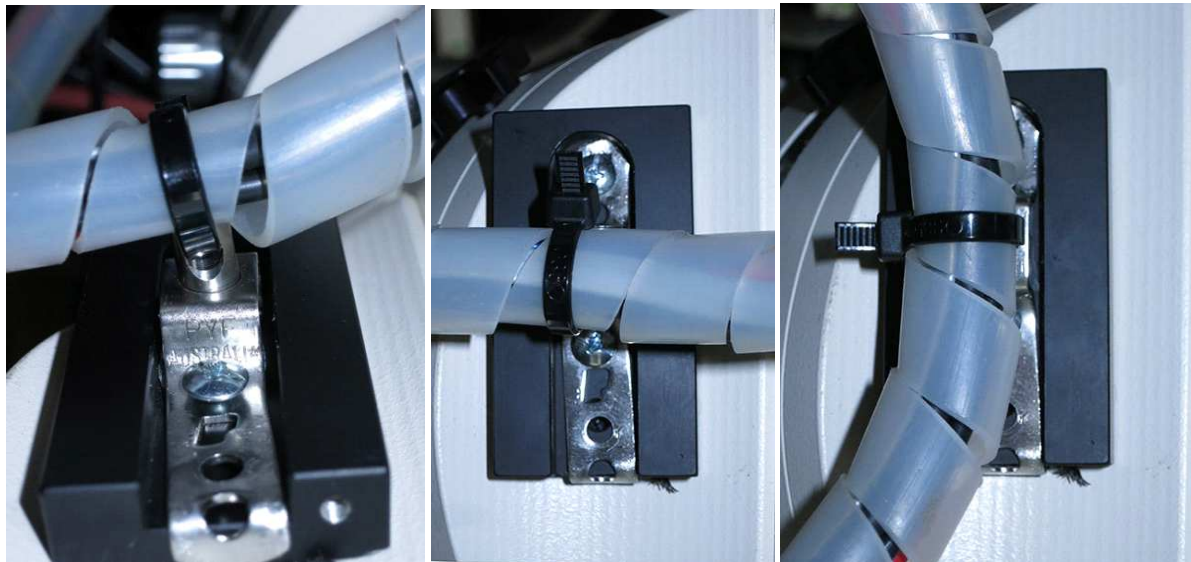
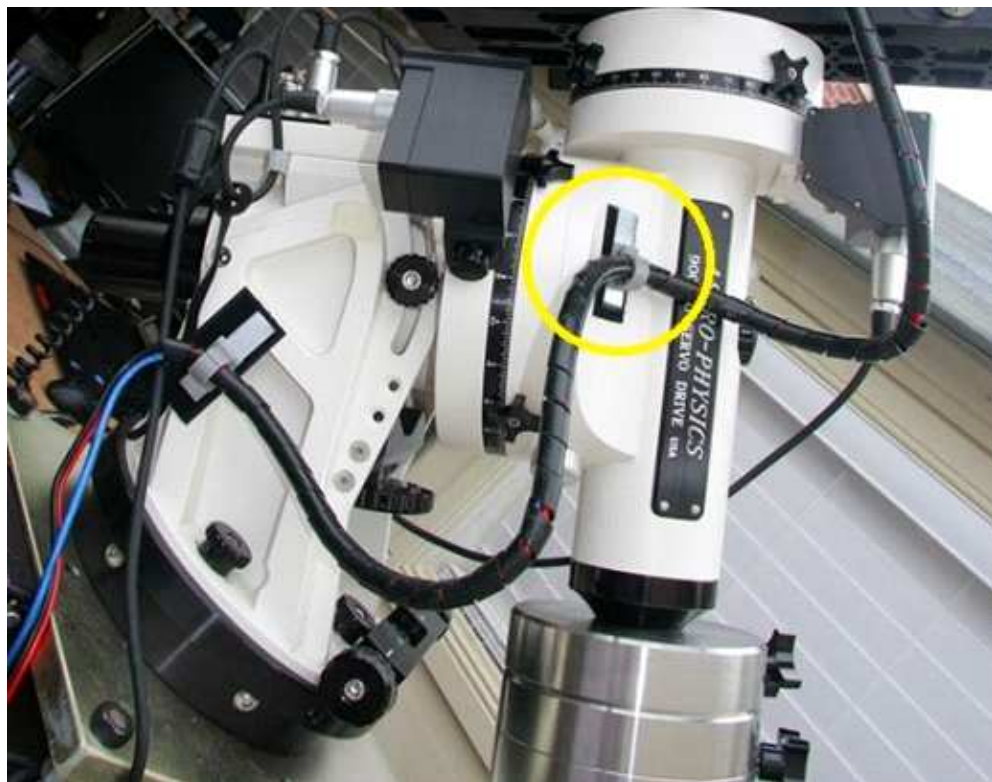
- **Finished**

By completing the above, you should be now ready to test your new configuration. Swing the scope around through all positions whilst having your clutches all set to free. You should not notice the cable restraining the scopes movement at any orientation [well, any real-time orientation].

Optional item

At point 4 is discussed the management of the loom down the scope. One item I have only recently evolved is the connection point at the below position:

This connection point is the most important in the loom flow from the top to bottom, as it handles the holding of the loom at the point of most duress. When you slew the mount from one side to the other, the cable tension here is probably the greatest, with the cable heavily changing direction. To facilitate a smooth movement, sometimes you need to provide extra cable length to reduce restriction. But, the greater the length of loom also increases the chances for snagging. So I created a new mechanism for this position. The hook has been replaced by a pivot point, a point where the cable can slew in relation to the movement of the axis's. This also allows for the reduction in length of the loom, which in turn has lead to a reduction in the chance for snagging. I feel this, with the angled bracket upon the dovetail are the two most important evolutions of my cable management system to date.



Left: View of the pivot point. Middle +Right: Showing slew of the loom at the pivot point.

Note: Here is a close up of the spiral binding currently being used. You can see the wire diameter inside to the size of the binding.

Conclusion

It may happen that you have less cables than discussed above, and that you decide not to mount any equipment pieces upon the scope. If you find any one part above helpful, I hope its implementation reduces or removes the cable management issues you face. When it comes to guiding, sometimes you need to look beyond the software parameters to find the solution.

Happy imaging everyone!

Steve Mohr's Gallery

NGC3324



NGC3576



SOCIETY INFORMATION



Peter Lowe



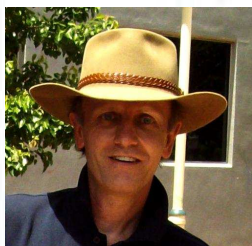
Dave Rolfe



Peter Skilton



Jamie Pole



Trevor Hand



Paula Ritchens



Clemens Unger



Greg Walton - Please send your articles & photos to gwpmpas@gmail.com

OFFICE BEARERS OF THE MORNINGTON PENINSULA ASTRONOMICAL SOCIETY

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Phone Contact: Peter Skilton - 0419 253 252

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

SOCIETY MEETINGS

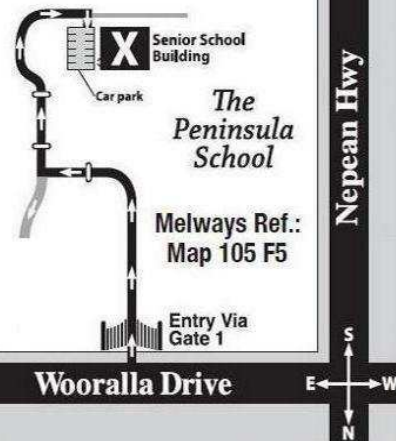
Meeting Venue: The Peninsula School,
 Wooralla Drive, Mt. Eliza, (Melways ref. 105/F5)
 in the Senior School at 8pm,
 on the 3rd Wednesday of each month
 (except December).
 Entry is via the main gate, off Wooralla Drive.
 (see map).

For additional details:

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

Phone: 0419 253 252

Mail: P.O. Box 596, Frankston 3199, Victoria, Australia.



LIBRARY

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

E-SCORPIUS NEWSGROUP

M.P.A.S. main line of communication is the online newsgroup called E-Scorpius. Here you will be kept up to date with the latest M.P.A.S. news and event information as well as being able to join in discussions and ask questions with other members.

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

VIEWING NIGHTS - MEMBERS ONLY

Any night, at The Briars, Nepean Hwy, Mt. Martha, starting at dusk.
 Members visiting The Briars for the first time must contact Greg Walton on either **9776 2074** or **0415 172 503** if they need help in getting to the site. Upon arrival at the site, remember to sign the attendance book in the observatory building.

For additional details:

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email: welcome@mpas.asn.au

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