The Messenger

Mexborough & Swinton Astronomical Society

May 2015

Pixinsight Workshop

As you will know the society hosted a PixInsight image processing workshop recently on Saturday 25th April. The event was well attended by members with 11 members taking part. Harry Page of Harrys Astroshed and PixInsight videos fame was our tutor thought the day. Harry showed a number of processing techniques and gave tips, guidance and insights to the many questions he was asked during the workshop. I really enjoyed the day and like a number of people who use the equipment at the observatory went away with ideas on how to improve further the images I take and process. I am looking forward to next year's Imaging Competition.
For those who could not make the event have a look here for some excellent tutorials:-

www.harrysastroshed.com

Tony Morris



MSAS welcomed "Harry" of Astroshed fame to lead a workshop in astrophotography processing using PixInsight at the societies meeting room. The workshop ran from 10am to about 4pm on Saturday 25th April.
Harry used raw data supplied by Tony Morris and Andrew KV (should have dithered!).
He demonstrated a range of techniques from basic to more advanced and imparted knowledge gained over many years of using the program. The event was well attended and members of all levels of experience gained greatly. The results will surely be well represented in next years imaging competition.

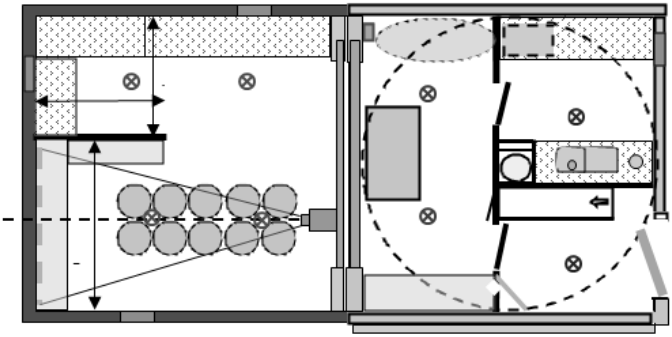
I'm sure that all attendees would wish to express their thanks to Tony Morris for organising the workshop and of course Harry for his valuable time. The sessions were captured on video, and will be available for members to view at their leisure.

Mike Scollan

The Thoughts of Chairman Les



I would like to welcome those new members that have joined us since or last journal and I hope that you have many interesting and happy years with us. With reference to The Feasibly Study Group, the society has not had any reply from Yorkshire Water Services since our site meeting with them some months ago and this is causing major concerns for the group and the society as a whole. I wonder if anyone else feels that as we are at the start of the summer months that we might be able to start building the actual extension itself, this would of course have to be agreed by the Executive Committee on what type of construction would be and what will happen to the internal space created before any site work could start. Below is a sketch of my thoughts. Your committee are very eager to find some very cheap storage for most of the items in our meeting room as its getting very crowded with instruments and mobile display items and therefore becoming very untidy, if you find or know of any such place please let us know.
I will keep you informed as and when we gain further information.



A short time ago our Fundraising Officer Paul took the opportunity to send an application to this funding group. Shortly after he received a reply in the positive saying that our application was successful and that we would hear more within a few days.
The message reads:-

"We are delighted to confirm that we've approved your project. We'll email you again on 30 April with a unique link to your project. So when voting opens on 1 May, you'll be ready to start getting those votes in. For hints and tips on how to promote your project, look out for advice on our website coming soon. Good luck!
The Aviva Community Fund Team"

To help our project to be successful and gain the actual funding we have to gain as much support as possible from our supporters by them voting for us. This is the whole crux of us being successful with our project that we get as many supporters as we can to vote and 'win' the actual funding.
Paul intends to furnish us with all and any ways that we can vote as soon as he receives them.
IT WILL THEN BE UPTO US TO GET THE VOTES IN.
SO LET ALL YOUR FRIENDS AND FAMILY KNOW THE DETAILS
I wish you clear skies

Les Marsden

Chairman

Mike Hall's May 2015 Skynopsis



Diary (all times BST unless otherwise specified)

1st	Sunrise 05.39, Sunset 20.41
4th	Full Moon
5th	17.00 Saturn 1.5 deg. south of the Moon
6th	Sunrise 05.29, Sunset 20.50;
6th	Eta Aquarids meteor shower maximum
7th	05.00 Mercury at greatest elongation East 21deg
11th	Sunrise 05.19, 20.58

Moon at Last Quarter,

12th	Moon at last quarter, 01.00 Mercury 8deg. north of Aldebaran; 21.00 Neptune 3deg South Moon
15th	17.00 Saturn 1.5 deg. south of Moon
16th	Sunrise 05.11, Sunset 21.07;
18th	New Moon
21st	Sunrise 05.04, Sunset 21.15, 00.06 UT and 13.29 UT Jupiter double shadow transit, Venus 19.00 8.5 deg. north of Moon
23rd	02.00 Saturn at opposition
24th	J04.00 Jupiter 5.5deg north of Moon
25th	Moon at first Quarter
26th	Sunrise 04.57, Sunset 21.2, 22.00 Moon at apogee (404, 245km)
28th	02.01 UT Jupiter double shadow transit
30th	Mercury at inferior conjunction

The Planets

Mercury	Well placed in the evening sky peaking between 1st and 6th, 6.5deg. North of the Moon in Taurus 0n 19th at 06.00
Venus	Getting brighter through the month dipping towards the western horizon, mostly in Gemini
Mars	Not visible this month
Jupiter	Crosses the meridian approx. 18.00 in the middle of May, lying to the right of Alpha Leonis, apparent diameter significantly decreased from early in the year
Saturn	At opposition and visible all night on 3rd, between Libra and Scorpius; apparent diam. 18"
Uranus	Unfavourable viewing
Neptune	Unfavourable viewing

Galactic Goodies

Eta Aquarids	5/6th, 6/7th but unfavourable viewing due to moonlight

Deep Sky challenges:

Ursa Major	M81 RA: 09h 55.6m Dec: +69deg 04m (Bode's Galaxy)
	M82 RA: 09h 55.8m Dec: +69deg 41m (Cigar Galaxy)
Canes Venatici	M51 RA: 13h 29.9m Dec: +47deg 35m (Whirlpool Galaxy)
Bootes	Arcturus (alpha): RA: 14h 16" 23', Dec 19deg 06m 16s, Mag: -0.04
	Nekkar (beta): RA: 15h 01m 57s, Dec 40deg 23m 26s, Mag: +3.5
	Izar (epsilon) double star, RA:14h 44m 59s, Dec: 27deg 04m 04s, Mag: +2.6/+4.8

NGC 5248 Spiral galaxy, RA: 13h 37m 32s, Dec: 08deg 53m 07s, Mag:11.0
NGC 5676 Spiral galaxy, RA: 14h 32m 47s, Dec: 49deg 27m 28s, Mag: 12.3
NGC 5660 Spiral galaxy, RA: 14h 29m 50s, Dec: 49deg 37m 22s, Mag: 12.4
NGC 5466 Glob cluster, RA: 14h 05m 27s, Dec: 28deg 32m 04s, Mag: 9.2

See Mercury in the Evening Sky

From BAA Bulletin

Mercury can be a difficult planet, not because it is faint, it can be an easy naked eye object, but rather because being so close to the Sun it only pops in to view for short periods in the morning or evening sky.

At the end of this month and beginning of May there is an opportunity to see it during its best evening apparition of the year (it reaches greatest eastern elongation on May 7). Also, on the evening of April 30, it passes within 2 degrees of the Pleiades star cluster (Messier 45) making an ideal observing and imaging opportunity.

To find Mercury on that date (binoculars will help here) follow the ecliptic down through Jupiter and Venus towards the horizon and once the Sun has set (around 19:20UT, 20:20BST) Mercury, shining at magnitude -0.4, will be found around 18 degrees up.

Do make sure the Sun has set before you scan for the planet using any optical aid, as even the briefest accidental view of the Sun through binoculars could result in blindness.

As the sky darkens Mercury should become an easy naked eye object and around 20:00UT it will lie about 11 degrees above the horizon at an azimuth of 293 degrees. If you use a telescope it will show a phase of 56% and a disk diameter of 7 arc sec. By comparison, Venus will show a diameter of 16.7
arc sec and the giant planet Jupiter a diameter of 38 arc sec.

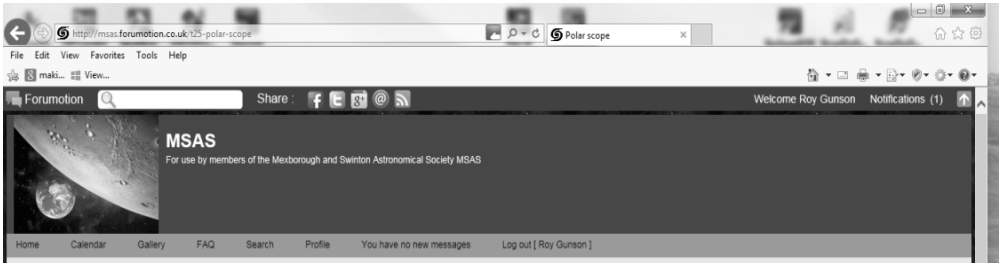
If you fail to see it on April 30 because of the fickle British weather all is not lost as Mercury and the Pleiades remain within a few degrees of each other for the next couple of days. On May 7, date of its greatest eastern
elongation, at 19:30UT it will lie exactly midway between Venus and the point on the horizon where the Sun sets, although by now no longer close to the Pleiades.

MSAS FORUM

Trevor Worrall

Trevor Worrall and Gary Gawthorpe are now managing the society's on-line forum. (We can now have meetings from the safety of our own homes!). A link is provided below and can you contact Trevor or Gary if you are having issues registering at the via the link .

http://msas.forumotion.co.uk/



Professorial Lecture

- *Professor Roger Eccleston*

Big, Little and All - or how to travel in space and time, and what you might see when you get there

Tuesday 12 May 2015
6 for 6.30pm
Room 7140, Stoddart Building
City Campus, Sheffield Hallam University

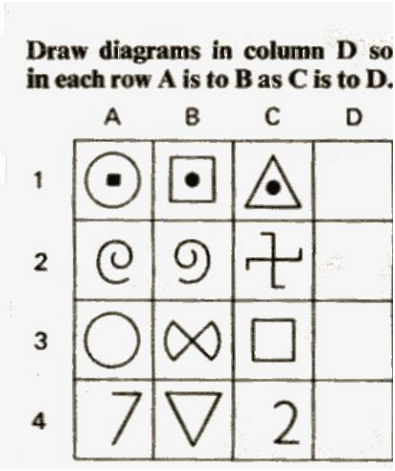
About this lecture

"Before I put myself at risk of miss-selling this lecture I should point out that it is not about space travel (not in the Star Trek sense anyway) nor is it particularly about time travel (well, not in the Dr Who sense). It is, however, about the opportunities physicists have to travel in space, to study the very large and the very small, and in time, to observe phenomena that occurred at the birth of the Universe. Sophisticated research facilities allow us see beyond the visible spectrum to, for example, witness and understand the birth of stars and to observe the structure and behaviour of materials at anatomic level. It is possible to recreate the conditions that existed within a billionth of a second of the Big Bang and study the first moments of the Universe. These research facilities are often big, usually expensive and always technically complex. In this lecture I will be considering what "Big Science" (research conducted using large-scale facilities like particle colliders, neutron sources or space-based telescopes) can tell us about our Universe and, on a more prosaic level, some of the materials that are part of our everyday lives."

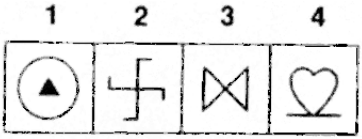
http://www.shu.ac.uk/events/corporate-events/ProfessorRogerEccleston.html

Pauline's Puzzle Corner

Last Month's Puzzle



Answer



See the latest pictures from Mars



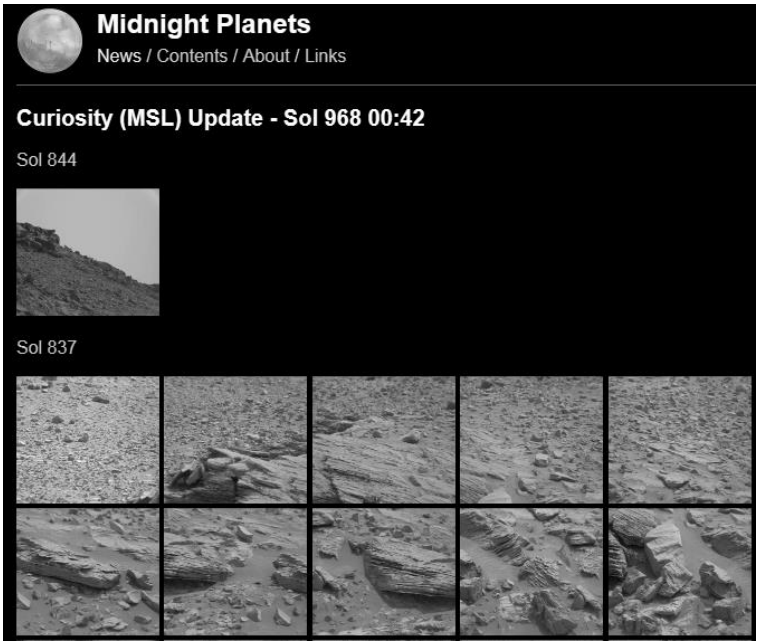
This picture was taken by the Opportunity Rover on Sol 3968 . (A Sol being each Martian day since its arrival on the planet.)

A Sol is a term used by planetary astronomers to refer to the duration of a solar day on Mars. A Martian solar day or "Sol" is 24 hours, 39 minutes and 35 seconds long.
When a spacecraft lander arrives on Mars, each passing day of that it operates on the planet is given a numerical value of Sols.
The Viking landers, Mars Phoenix and the Curiosity Rover counted touchdown as "Sol 0", whilst the two rovers Spirit and Opportunity counted their touchdown event as "Sol 1".

The picture opposite is of a large black boulder and has been named "Marathon Monument" by the MER (Mars Exploration Rover) at JPL/NASA in the celebration of the Opportunity Rover passing the 42 km mark – meaning the rover has now completed the same distance across the Martian landscape as a marathon runner would have done.

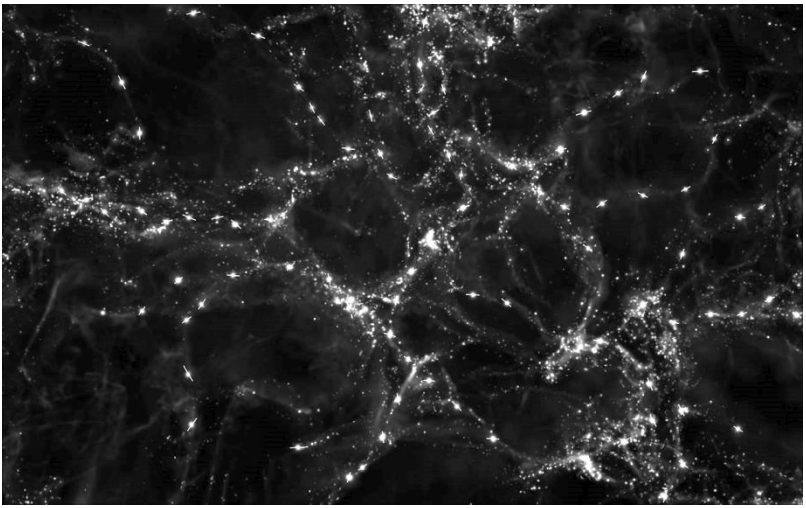
Maybe in a couple of hundred years time there will be a plaque attached to this rock celebrating this event?

One web site very useful for checking the latest photographs from all the rovers is Midnight Planets - http://www.midnightplanets.com/



A Surprising Alignment of Quasars Across the Universe

by Brian Ventrudo



Artist's conception of the alignment of quasars

In a remarkable discovery, astronomers using ESO's Very Large Telescope (VLT) in Chile have discovered that quasars separated by billions of light years are aligned parallel to each other, as if they were under the influence of an unseen mechanism that gets them pointing in the same direction. This mechanism seems to be related to the largest-scale structures in the universe, the vast filaments of galaxy clusters that form around voids and bubbles were very few galaxies are found.

A quasar is a galaxy with a supermassive black hole at its center. The black hole sucks in material which creates a spinning disk with an enormously bright jet along the axis of rotation. A quasar generates so much energy, it outshines all the rest of the stars of its host galaxy combined. Were a quasar placed at the same distance as the star Vega, about 26 light years from us, it would shine as brightly as the Sun.

You don't see many quasars in our part of the universe any more. But they were quite common in the first several billion years of the life of the universe. Which means the quasars we see with big telescopes must be quite distant because it took their ancient light billions of years to reach us.

The light from the 93 quasars measured in the ESO survey left when the universe was 1/3 of its present age. The quasars were too far and faint to reveal their jets directly. But astronomers measured the polarization of the light, which is related to the direction of rotation, and found 19 of the quasars were pointing more or less in the same direction, the direction that points along the filaments themselves (see image above). The probability that these are chance alignments is less than 1%.

Some models of the large-scale structure of the universe predict a degree of alignment. But this study, which is the first to confirm this prediction, shows the effect on a much larger scale. So astronomers have a new puzzle on their hands as they wrestle with what causes the alignment of these energetic galaxies over billions of light years.

[Reproduced with permission from One Minute Astronomer - http://oneminuteastronomer.com]

Programme for April & May 2015

Date	Time	Location	Subject & Speaker
Thu May 7th	19:45	Club Room	**The Colours of the Cosmos** *Tony Morris*
Wed May 13th	19:45	Club Room	**Executive Committee Meeting**
Thu May 14th	19:45	Club Room	**NASA & ESA Mission Updates** *Various*
Thu May 21st	19:45	Club Room	**The Hunt for Dark Energy** *Carlton Baugh*
Thu May 28th	19:45	Club Room	**Summer Sun** *Mike Hall*
Thu June 4th	19:45	Club Room	**TBA**
Sun June 7th	14:00 – 17:00	Observatory	**Community Access Event** **Solar Observing**
Wed June 10th	19:45	Club Room	**Executive Committee Meeting**
Thu June 11th	19:45	Club Room	**Who Knows?** *Phil Muffett*
Sun June 14th	10:00 – 15:00	RSPB, Old Moor	**Public Outreach** **View the Sun as Never Before**
Thu June 18th	19:45	Club Room	**Images of Universe 6** *Paul Money*
Thu June 25th	19:45	Club Room	**Annual General Meeting**
Sun June 28th	11:00-17:00	Thrybergh Country Park	**Public Outreach** **Fun Day**

Old Moor RSPB – Manvers Way, Barnsley, S73 0YF
Wentworth Castle – Stainborough, Barnsley, S75 3ET
PVE – Public Viewing Event
CAE – Community Access Event

Web site: http://msas.org.uk
Meeting room is at Swinton Working Men's Club, Station Street, Swinton, South Yorkshire, S64 8AU.
Observatory is at Lee Brook Lane, Hoober, S62 7SH
Mexborough & Swinton Astronomical Society is Registered Charity N^{o} 1064103 in England & Wales

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