

2002



NEXT MEETING

THURSDAY, 20th November 2014

THE ASTRONOMICAL SOCIETY OF HARINGEY

VOLUME 43 : ISSUE 1 : November 2014

www.ashastro.co.uk

SOCIETY NEWS

MEETING VENUE

Music Block, Ashmole School, Southgate, London N14 5RJ.

The day for meetings is usually the third Thursday of each month. The exceptions are August, when we do not hold a meeting, and this now currently applies to the July and December meetings, though that may alter in the future?

However, in case of changes, it is always advisable to double-check the dates below.

For more on this, and general meeting information, also check the website:
www.ashastro.co.uk. Latest update October 2014

A Facebook page has been set up. It is, contrary to previous listings, under Astronomical Society of Haringey in Groups



Doors open - 7.30pm : Main speaker - 8.00pm : Finish - 10.00pm sharp!

New or updated information is in *italics*

2014

Below are the currently scheduled dates for this year.

Most meetings will also end with a round-up of 'What to View in the Night Sky' for the following month. This is a continuation of what you get in the Night Sky pages here.

November 20th : Michael Franks : "Is There Lava On Mars?"

December : No meeting this month although an issue of 2002 is planned

Remember however there is likely to be an Observing Evening between now and the next scheduled 'indoor' meeting, so again important for you to let Jim or Alister know your mobile phone number, and if not already on the list, your email; emailing to observing@ashastro.co.uk reaches both of them. The Facebook page will also be used.

2015

COVER:

This somewhat surreal landscape could - changing the 'green' to 'red' - almost be Mars. The water looks frozen - but it isn't it's flowing - the 'fuzziness' in the air is the mist - and this is Iceland. More on this bizarre landscape at the next meeting "Is There Lava on Mars?" by Michael Franks - who will also explain the title!

Photo: Michael Franks

SOCIETY NEWS

MEETING ROOM



We currently meet on the first floor of the Main Music Block. This is the two-storey building, next to our original room, the original Music Room. This is marked with the X in the photo on left, (and although it is demolished, the site is currently being redeveloped with a new structure). The route in red is shown from the main gate of the School. We hope a first floor will be suitable for all, as there isn't a lift. If anyone feels they will have difficulty, please let the Chairman know.

Contact details on back page.

MEETING PREVIEW : 20th November 2014

Michael Franks : "Is There Lava on Mars?"



November is Michael's Month as not only is he giving this month's talk, but also has an article in this issue about geocaching and International EarthCache Day.

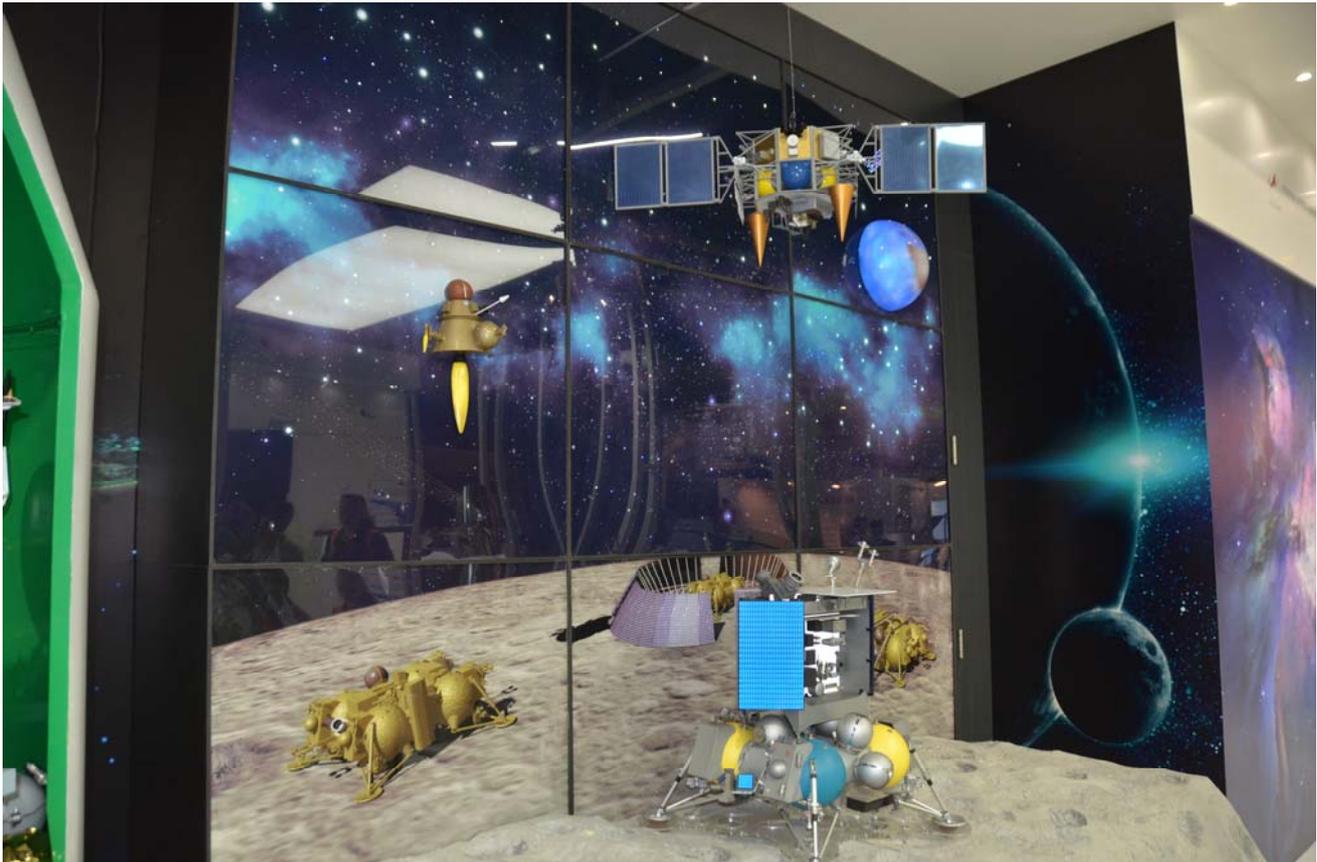
This is also linked to his talk about his recent visit to Iceland, and here we are talking of the country, not the other place "everyone's going to..." Given his interest in geology, Iceland is an ideal place to visit and he'll be examining the amazing 'off-world' landscape. He will be talking about such features as plate tectonics, volcanoes, geysers, lava tubes and even mud volcanoes; and compare them to where such features exist on other bodies in the Solar System such as the Moon, Mars and Venus.

There could be indications of such features for life on Mars and maybe lead to human settlement on the Red Planet. You will also get examples of Mars and Moon rocks to examine in close-up!

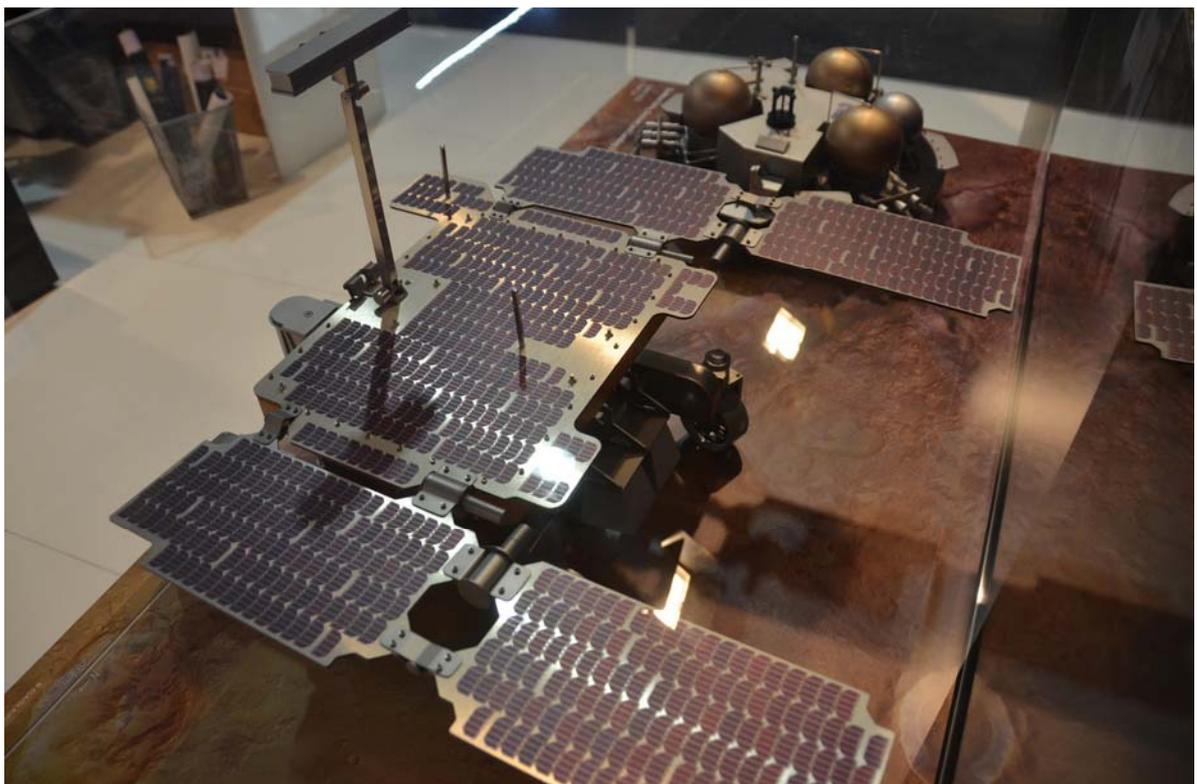
Mat Irvine



**MEETING REVIEW : 16th October 2014
AGM and Mat Irvine: "Space at Farnborough"**



Two images from the range of spacecraft exhibited at this year's Farnborough International Airshow in July. Above the Russian Lavochin display showing its plans for a return to the Moon with orbiters, landers and return probes. Below EXO-Mars from ESA the UK-built Mars Rover due for launch in 2018.



From A Queen To A King *or Cleopatra's Needle to Kings Cross* Michael Franks



One of my hobbies is Geocaching which is a hi-tech form of treasure hunting using a GPS set to find containers which are hidden all over the world. It is run by the parent body Groundspeak, and details of these geocaches are published on the web site www.geocaching.com. Some geocaches have astronomical or science fiction themes, such as the "Who Was Here" series which mark Doctor Who film locations. There are also special types of cache which mark geological features : Earthcaches. These are sponsored by the Geological Society of America. The ideal is you visit the location and answer questions about that location. You then email the answers to the person who posted the Earthcache and if that person finds your answers acceptable, you are given permission to log in and show you actually visited the site.

Every year the second week in October is Earth Science Week and the second Sunday is designated International EarthCache Day when meetings are held all over the world to mark the permission of the Geological Society of America, organised in London to look at geological features of interest such as the obelisks in Parliament Square and the grave stones in Brompton Cemetery. This year it was decided that events on International EarthCache Day would be included in World Space Week. (4th to 10th October - Ed.) In addition, the Geological Society of America decided that as it wanted to encourage people to enjoy the outside, it would like people to mark the day with a five kilometre walk or run either starting or finishing at an EarthCache. People who completed the task would be rewarded with a special Souvenir to put on their profile page.



the event. I have, with the permission of the Geological Society of America, organised walks in Central London to look at geological features of interest such as the obelisks in Parliament Square and the grave stones in Brompton Cemetery.

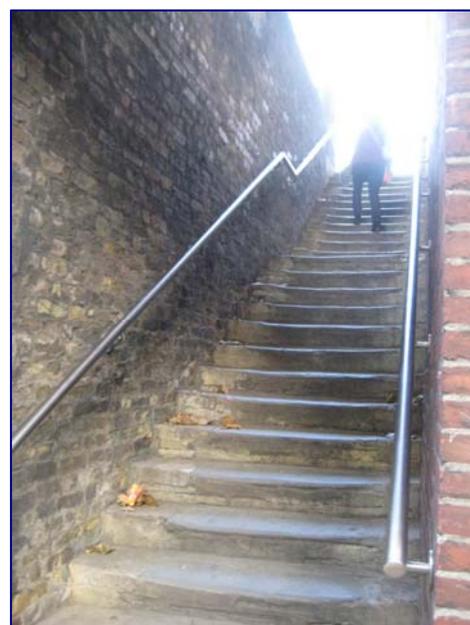
A 'Souvenir' is a piece of artwork you can put on your profile on the Geocaching website, which marks your achievement in finding a cache.

Groundspeak had also announced that it would also award a Souvenir for finding a Geological Society Souvenir on International Earthcache Day, so there was the unusual possibility of earning two Souvenirs in one day!



I had decided that it would be good idea to start the walk at the Cleopatra's Needle Earthcache on The Embankment as it was in Central London. This cache was only announced a few months ago so not many people would have found it. Diana Clements, a geologist at the Natural History Museum, kindly offered to help me prepare the route. We did a trail run, and she pointed out the interesting features along the way so that I could talk about them on the walk.

On Sunday 12th October 2014 I arrived at Cleopatra's Needle and was pleased to see that there was already a large group of people waiting for the start. *(top)* After everyone had signed in - confirming they accepted the American Geological Society's rules for the event and waiving all liability - we examined the Obelisk noting and its overall state of preservation, and the damage caused by a German bomb from the First World War. Considering this, and general weathering, it is in a reasonable state of preservation with the hieroglyphs still readable.



We then walked along The Embankment and I explained how the area we were walking on was all man-made, the product of Sir Peter Bazalgette's work to solve the sewerage problems of the 19th Century.

We looked up Arundel Street to see on the steep raise up to the original shore line of the Thames. I explained the word 'strand' meant 'beach' and The Strand marked an earlier shoreline of the Thames. I said that in the past the area had been much warmer and the fossilised remains of lions and elephants had been found during building works in the area. Then we walked up the narrow historic steps at the lower

end of Essex Street which originally led directly to the water's edge. *(above right)*

In Essex Street we looked at the iridescent slabs of Larkvikite, (*page 6 bottom left*), a beautiful stone from Larkvik in Norway which has large crystals of feldspar. I pointed out the blocks of slate in a building in the northern end of Essex Street and explained how slate started as volcanic ash. It then it fell onto the ground to form ashy layers and finally it was compressed to form an extremely hard rock so it was igneous sedimentary and metamorphic in original.

Next we walked along Fleet Street and stopped at Bell Yard. It was here I explained that Sweeny Todd (*The Demon Barber of Fleet Street!*) was supposed to have had his barbershop at 186 Fleet Street. Once he had dispatched his victims he would take their bodies, via an underground tunnel, to Mrs Lovett's pie shop in Bell Yard where she disposed of the bodies by cutting them up for the filling for delicious meat pies. I pointed out that the pub sign above Bell Yard still advertised pies though presumably they were not made by Mrs Lovett...?



Half way up Chancery Lane I pointed out a gate way of the old Public Records Office, now Kings College Library, where the wall is made of a grey carboniferous limestone which contains exquisite coral fossils.

We then walked to the end of Fleet Street to the Blackfriars public house for some refreshments. After a rest, we set off once more to finish the five kilometre walk. We walked north up Farringdon to follow the course of the lost River Fleet, reaching the shelter of King Cross Station just before the start of a tremendous downpour.



This completed the five kilometre walk which meant we were entitled to the special Souvenirs, both from the American Geological Society and from Groundspeak.

I have posted more pictures of the walk at http://www.geocaching.com/geocache/GC5AGPX_international-earthcache-day?guid=328fbc71-5ceb-4efc-b75e-5473f72f1918

CHAIRMAN'S QUARTERS



Moore's Law came into a conversation the other day and led me to some interesting research that was done recently. This 'Law' states that the number of transistors on an electronic integrated-circuit doubles every two years or so. It has produced an exponential increase in the number of transistors on microchips and still continues to do so despite physical limitations. If we measure this rate of increase, it would be easy to extrapolate backwards and work out when the number of transistors on a chip was purely one. This happens to be the early 1960s, when microchips were first developed. This seems to work with scientific publications, as well. Between 1960 and 1990, these doubled every 15 years or so. Extrapolating this backwards gives the origin of scientific publication as 1710, about the time of Isaac Newton!

Today, researchers from institutes in Baltimore and Florida, have attempted similar extrapolations to biological complexity and life. They argue that it is possible to measure the complexity of life and the rate at which it has increased from prokaryotes (single cells with no nucleus) to eukaryotes (single cells with a nucleus) to more complex creatures such as worms, fish and finally mammals. This produces an exponential increase similar to that of Moore's Law although in this case the doubling time is 376 million years, rather than two years. The question here becomes what happens if you extrapolate backwards to the point of no complexity – i.e. the origin of life? Linear regression of genetic complexity (on a log scale) extrapolated back to just one DNA base pair suggests the time for the origin of life is about 10 billion years ago (give or take a couple billion).

Now, since the Earth is only 4.5 billion years old, this raises a whole series of questions, not least of these being how and where did life begin? The nature of evolution is filled with subtleties that most biologists would agree we do not yet fully understand. For example, is it reasonable to think that the complexity of life has increased at the same rate throughout Earth's history? Perhaps the early steps in the origin of life created complexity much more quickly than evolution does now, which will allow the timescale to be squeezed into the lifespan of the Earth?(A bit like the Big Bang and Inflation?) If we assume that this extrapolation is correct, we need to ask about the implications of the idea.

The researchers were sceptical about this 'massaging' of the time scales and took other data into consideration. There is good evidence that bacterial spores can be rejuvenated after many millions of years, particularly when stored in ice. Given that astronomers believe that the Sun formed from the remnants of an earlier star (or stars), it would be no surprise that life from this period might be preserved in the gas, dust and ice clouds that remained. By this way of thinking, life on Earth is a continuation of a process that began many billions of years earlier, around our star's forerunner.

This interpretation also explains the Fermi Paradox, which raises the question: "If the Universe is filled with intelligent life, why can't we see evidence of it?" If life takes 10 odd billion years to evolve to the level of complexity associated with humans, then we may be among the first, if not *the* first, intelligent civilisation in our Galaxy. This could be the reason why when we gaze into space, we do not yet see signs of other intelligent species.

There is no doubt that this is a controversial idea that will ruffle more than a few feathers amongst evolutionary theorists. It is also provocative, interesting, exciting and worthy of debate in detail.

See you at the next meeting

Jim

SKY VIEWS A composite picture, using Hubble Space Telescope images, showing the position of Comet Siding Spring relative to Mars



SPACE NEWS

The tragic crash of SpaceShipTwo in the Mojave Desert initially appeared to be an engine fault. Now it appears far more likely to be linked to the wing feathering mechanism deploying incorrectly. Equally devastating, as it killed one pilot and seriously injured the other, but it could be far more straightforward to solve.



Unfortunately with new technology accidents will always happen, especially with space projects - Soyuz 1, Apollo 1, Soyuz 11, Challenger and Columbia - but it is the only way to proceed. Virgin Galactic will eventually take to the skies but almost certainly after a much longer delay.

THE NIGHT SKY : THE PLANETS

November - December 2014

MERCURY : In the morning skies. Having reached greatest western elongation on 1st November it measured seven arcs seconds in angular diameter, magnitude -0.5 with a phase of just over 50%. This was its best viewing for any morning apparition this year. However now the planet will have dropped too close to the horizon for viewing by mid-month. At superior conjunction on 8th December.

THE USUAL WARNING TO TAKE EXTREME CARE WHEN VIEWING JUST BEFORE SUN RISE - AND NOT TO USE ANY OPTICAL DEVICES.

VENUS : Reached superior conjunction on 25th October and passed behind the Sun. Moved back into the evening skies by mid-month

[From last month... EARTH : GMT / UTC begins 02.00hrs on 27th October. Hmm... nobody pointed out the day was wrong - it should have been 26th.... Ed.]

MARS : Moving eastwards relative to the constellation of Sagittarius. Reducing in magnitude from +0.9 to +1 during the month, and the angular size of its disk falls from 5.5 to 5.2 arc seconds. It is best observed as darkness falls low above the south western horizon, but is low down, and will need a clear horizon. Sets around two and a half hours after the Sun. Moon close on 26th November.

JUPITER : At the beginning of the month rising around 23.30hrs, at magnitude -2 near Regulus in Leo. By the end of November rising around an hour earlier with an increase in magnitude to -2.3. At this point the giant planet is due south and high in the sky around an elevation of 53 degrees about two hours before Sunrise. By 10th December it will be in a retrograde motion. Earth and Jupiter are also closing in distance, (relatively!), and the size of Jupiter's disk increases slightly from 37 to 39 arc seconds. Early risers should be able to see the equatorial bands in the atmosphere and the four Galileans. Moon close on 14th November and 12th December.

SATURN : Magnitude 0.6 in Libra. Reaches superior conjunction on 18th November and will disappear from view. Re-emerges in the morning skies at the end of November. Moon to the north on 19th December

URANUS : In Pisces, was at opposition on 7th October. Moon to the north on 2nd December. An occultation will be visible in western Canada and Alaska.

NEPTUNE : In Aquarius, magnitude around +8. Moon to the north on 29th November.

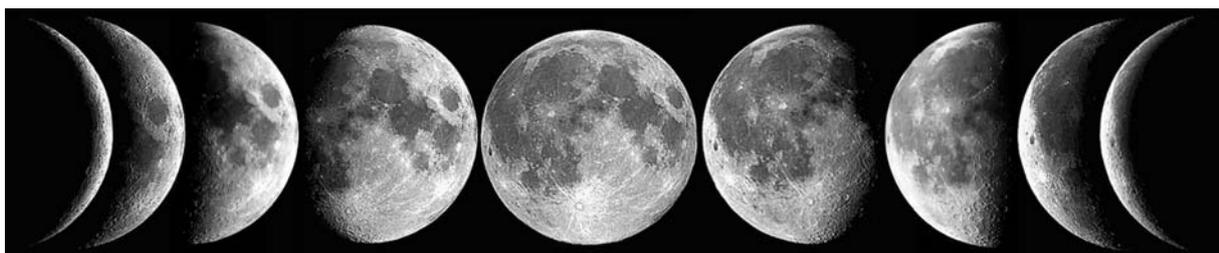
METEORS

The Leonids can be visible through the month but peak, 17 - 18th November. Geminids peak 14th December

COMETS

2014's most anticipated comet, C/2013 A1 Siding Spring, passed by Mars at 09.28 UTC on 19th October. There is a composite image on the Sky Views page.

THE MOON



New 23rd
New 22nd

First 31st
First 29th

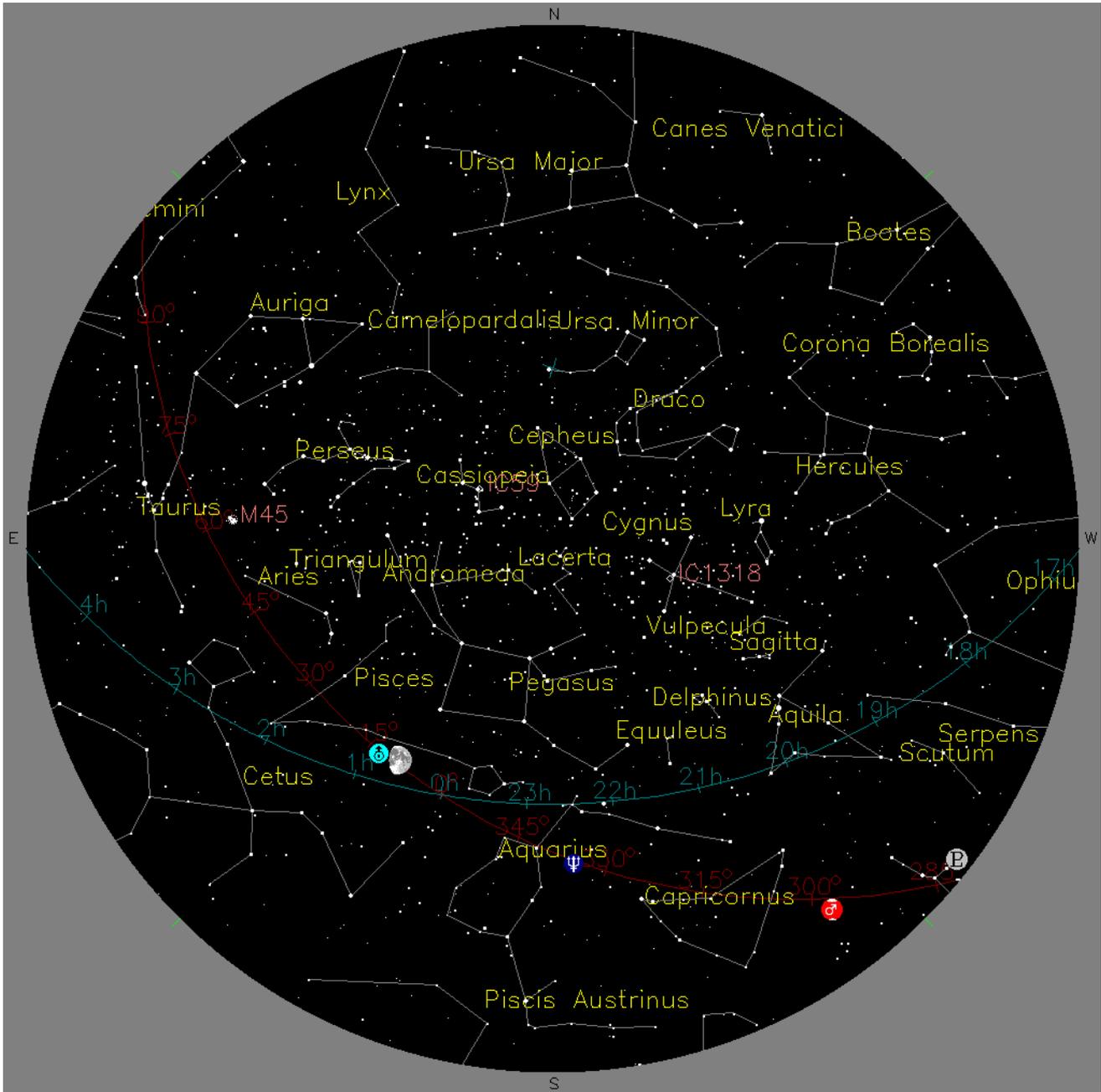
Full 6th November
Full 6th December

Last 14th
Last 14th

New 22nd
New 22nd

THE NIGHT SKY : MAP

1st December 2014 : 18.00hrs GMT/ UTC



KEY

 MERCURY	 SATURN
 VENUS	 URANUS
 MARS	 NEPTUNE
 JUPITER	 PLUTO



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