

NEXT MEETING
THURSDAY, 8th October 2015
NOTE : A WEEK EARLIER THAN USUAL
THE ASTRONOMICAL SOCIETY OF HARINGEY
VOLUME 43 : ISSUE 12 : October 2015
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.

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

For more on this, and general meeting information, also check the website:
www.ashastro.co.uk. Latest update: September 2015.



OBSERVING EVENINGS

Regarding any changes to Observing Evening meetings, this is a continuing message to let Observing Officers Jim Webb, Alister Innes or Kyri Voskou know your mobile phone number.

And, if not already on the list, your email address - emailed to observing@ashastro.co.uk reaches all three. The Facebook page will now also be used.

2015

October 8th : Michael Franks "Who Owns the Moon?", including AGM
: Note this date is a week earlier than usual to coincide with Space Week

November 19th : Observing Evening - *TBC*

December : No meeting this month

2016

Dates to be announced

COVER:

Down in the forest something stirs... Spotted at the Essex Mega Event at the end on July apparent he/she/it was guarding the geocache hidden by Michael Franks for anyone who could work out its location.

For such a visitor 'from elsewhere', we must say it's wearing a very fetching pair of sneakers... More inside!

Photo: Caroline Mockett ARPS

SOCIETY NEWS



For up-to-date information, we are now using that 'necessary evil' - Facebook. Note as this is an Open Group you do not have to be a member of Facebook to read posts and messages, you just need some form of Internet access.

Go to : www.facebook.com/groups/ASHastro/
However if you want to 'interact' (ie post messages), you have firstly to join Facebook, then, on the ASH Facebook page, ask to join our Group, and you will get 'signed up'.
The more the merrier!

MEETING ROOM



We currently meet on the first floor of the Main Music Block at the School. 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, and the site has been redeveloped with a new structure). 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

**8th October : Michael Morris Franks, LLB, FBIS
"Who Owns the Moon"**



The talk will discuss who, potentially, owns extraterrestrial bodies such as the Moon. This subject is becoming of increasing importance as private entrepreneurs develop spacecraft capable of reaching low Earth orbit and beyond. There may be immense value in the metallic rocks of the asteroid belt, but who will have the legal right to exploit these objects?



The talk will examine the existing law found in United Nations Treaties and recent United States Legislation. It will also consider private international law and the jurisprudential theories of ownership.

With Michael being a solicitor, and consequently well versed in the law, he is an ideal speaker for this subject.

The date of the meeting has been moved for this month, so that it will be an event within World Space Week. This has designated by the United Nations as a week each year in which to celebrate, at the international level, the contributions of space science and technology to the betterment of the human condition

MEETING REVIEW

28th July : Michael Franks : "Star Gazing Picnic"

Back in October 2014 I was asked by Jen Butler, an ASH member, if the Society could help with a star-gazing picnic event as part of Essex Mega, which was going to be a geocaching event for over 500 people, to be held at the end of July the following year, at that time, 2015. I sent her my ideas, including a puzzle based on the mnemonic 'OBAFGKMRNS' and plans for a rocket building session. I emphasised that we would also need to have backup arrangements in case it rained.



As there were likely to be well over 100 people attending, we would need to have a suitable number of rocket templates so that people could build the paper rockets. I pre-made some paper rockets in my lunch hour at work. I also bought sections of piping and cut it into two foot lengths. Then I went round the local bike shops and scrounged some old bike inner tube to cut up

and connect to the tubes to make the stomp rocket launchers.

Meanwhile the Essex Mega Committee was also busy. They had also printed out rocket templates and bought paper, scissors and glue to construct the rockets. I also prepared for publication a special mystery cache based on the mnemonic and made sure that the actual cache location was decorated with stars, planets, a Space Shuttle model - and a special surprise. I had also prepared a PowerPoint Presentation explaining how to find your way round the night sky and the wonders you can see with a telescope or binoculars.



The event was held in a field on Barleylands in Essex with a marquee so we could go outside to launch the rockets and then inside for the talk.

I had brought along my travelling telescope and a number of people attending also brought telescopes and binoculars. We had clear horizons in all directions and were on a camp-site in the middle of the countryside, with the potential of dark skies. Consequently I suspect most were full of excitement at the thought of what might be seen. At the start of the Tuesday evening there was rain but it briefly cleared and there was a wonderful rainbow. Fortunately the weather then remained dry and people were able to build and launch their rockets.



It was very satisfying to see how high a paper rocket, launched from a stomp rocket launcher made from scrap, could go. But the skies then darkened with rain, so people came back inside the marquee for the talk.



'A Catcher's Guide to the Cosmos' or 'Everything You Wanted To Ask About Stargazing - But Were Afraid To...' I had feared that the weather might prevent actual star gazing, so I had prepared about 20 images of galaxies, star clusters and nebulas with charts explaining how to find them. Unfortunately the weather did not clear at this time, and so my talk had to end without any actual star gazing. I went back to our camper van, tired and hoarse, to Naomi my long-suffering wife, but those who found the mystery cache that evening were greeted by an alien - or so I am told!



The Essex Mega Event continued until the Monday. On the Friday night we had a 'Blue Moon'. (*The second full Moon in a calendar month*) On the Saturday night the skies were very clear, we were then able to watch a more traditional 'red' Moon as it slowly rose above the horizon.

I had set up my telescope and showed the Lunar surface with its craters and mountains. We also had a bright ISS pass, and were able to do some actual star gazing after all.



There were over 230 attended logs and since some of the logs were from families of at least five, rough calculations indicated that at least 300 people attended. I must give my personal thanks to the Essex Mega committee for ensuring the success of this event and to my wife for organising and driving our hired camper van which contained the telescope and other equipment needed for the event."

Michael Franks

photos courtesy Caroline Mockett ARPS

top - bottom

*The greeting Alien
The Space Shuttle
Michael explains what to look for
The sunset before the rain*

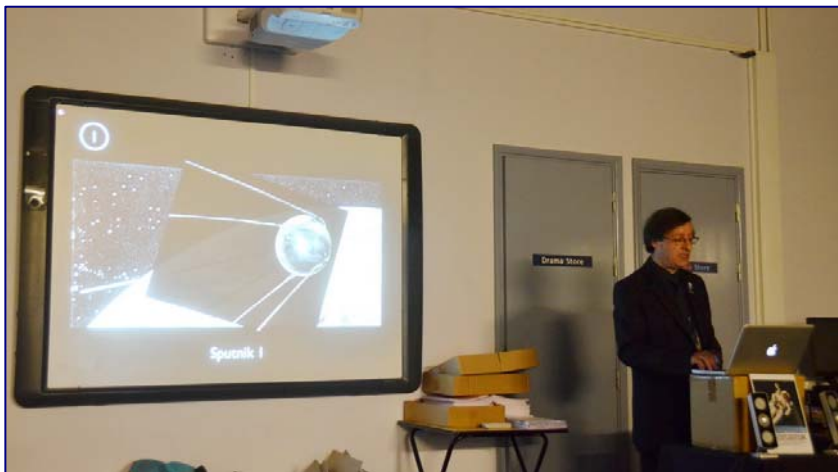


MEETING REVIEW

17th September : Jerry Stone : "The Race into Space"

The meeting unfortunately had a few glitches, the first of which occurred before we even got into the rooms! The School had misplaced the booking for that the evening, so the building was locked when we arrived to set up. We eventually gained access, but this delayed everything else.

It was also the first time Jerry had done this talk, so we got it fresh, but a few technical glitches meant that the link between computer and projector kept failing throughout. Most of the time it returned, though completely failed just as Jerry reached the finale - but we trust this did not spoil everyone's enjoyment too much.



The idea of using the Brooke Bond tea Card set is intriguing, and likely unique, and Jerry has gone through the 50 cards to see what had happened and, more to the point, had been correctly predicted. Then what plans that at that time lay in the future, that frankly still 'lay in the future'. The cards start with the beginning of the (modern) space age, so with Sputnik 1, and so the

writers were on fairly safe ground. Everything up until the beginning of the 1970s was also using well-trod territory, though many cards depicted unmanned satellites that, important as they were at the

time and for what has happened since, have really been forgotten about. But the manned space projects are well known - Mercury, Gemini and Apollo, and even the Soviets (as they still were in 1971), get fair mention. Of course as we approach card number 50, it is more interesting as we are dealing with post-1971, but that's when the projector failed. Fortunately your Editor had an original set of cards with him, so Jerry resorted to the old-fashioned method of pointing to the specific card in the book when its anointed time was upon us!



Overall a very interesting talk, and one I'm contemplating re-booking at a future date - though only when we have the technology sorted out!

Mat Irvine

CHAIRMAN'S QUARTERS



Weightlessness is one of the more extraordinary experiences when orbiting our planet. Strictly speaking, it is not the lack of gravity but more the case of the effect of continuously falling and catching up with your fall, otherwise known as 'free fall'. 'True' weightlessness would exist at a point near the Moon and slightly towards the Sun where the gravitational fields of the Sun, Moon and Earth would cancel out. Admittedly, the gravitational fields of the planets would then have a slight effect, but that would be as close as we could get to weightlessness. It is feasible that the astronauts travelling to the Moon may very well have experienced this. Being the sort of beings we are, we have adapted to this environment quite quickly as the Soviets/Russians of Mir and the occupants of the ISS have shown. How other animal species would cope with weightlessness is a matter of speculation as we have not taken any four-legged creatures to the ISS. It does raise an interesting point as to how they would react in such an environment but obviously not something one would undertake lightly as there would have to be constant cleaning up after them.

There have been, however, cats on the ISS since January! Well, OK, not the furry animals that would probably freak out at not being able to run about or grab hold of anything for support (maybe a good hiss might send them slowly flying backwards!), but CATS - Cloud Aerosol Transport System. It has been said that what use is a space station without a laser cannon? That is just what CATS is – but not of the planet obliteration variety. Its purpose is substantially more benign. The goal of CATS is to study the distribution of the tiny particles of dust and air contaminants known as aerosols. By using multi-wavelength laser technology, the device is being used to study aerosol distribution and transport in our atmosphere.

Iceland's Eyjafjallajökull (try saying that after a few pints!) [*...or even before - Ed*] volcano and its effect on air transport was one of the many reasons this project was undertaken. By using three different laser wavelengths, very precise readings can be obtained about the movement of dust of various sizes around the planet. This includes direction, altitude, speed and particle size – all good scientific data but also, more practically, valuable information for the aircraft industry to inform them of increased areas of large particles that can clog up jet engines. Hopefully, the days of jet airliners with all four engines shutting down due to volcanic ash will be now numbered!

The ISS provides a unique vantage point for CATS. With its highly inclined 51.7° orbit, the station passes over a good swathe of our planet on 16 orbits daily with a westward moving ground track that repeats roughly every three days. This ensures that CATS has coverage over a large percentage of the planet, including known pollutant transport routes across the northern Pacific and down from Canada over the U.S. Great Lakes region. The three lasers work at infra-red, visible and ultra-violet ranges with relatively cheap technology. In the current budget-constrained environment, there is the need to have as much capability to do more with the least expenditure. The ISS provides this very effectively, ie to be above the clouds and covering as much ground as possible.

The question everyone will ask is, "Can these lasers be seen from the ground?" The visible light wavelength used is green, though the answer is generally no. Except in very dark skies where the green spot (or the infra-red wavelength with an appropriately sensitive camera) can just about be seen above the overall brightness of the ISS, or when it is in the Earth's shadow. The reason is that the lasers are actually quite low power, but of enough intensity for the receiving cameras on board the ISS to detect the reflected light and be able to generate meaningful results.

See you at the next meeting

JIM

NEWS - compiled by Kyri Voskou

New Ceres images reveal bright spots in best detail yet

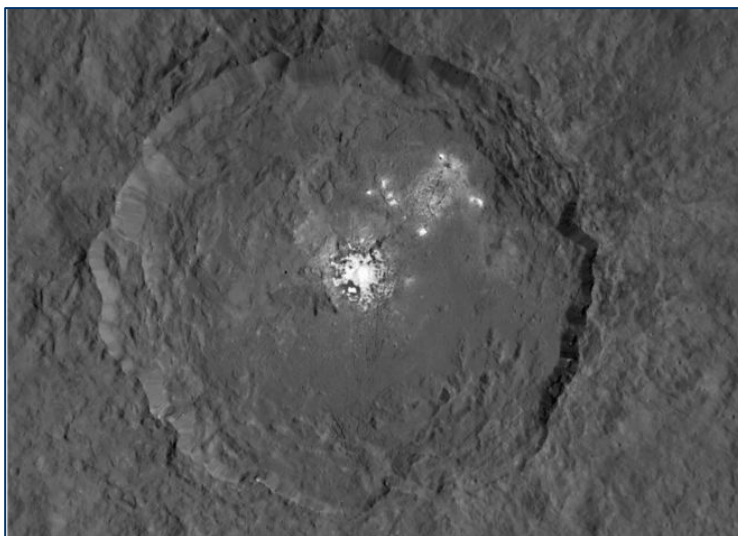
The Dawn satellite is continuing to return excellent data from the asteroid Ceres.

A number of recent images have been combined to show the crater Occator – best known for containing a number of mysterious bright spots – with the finest detail so far.

Since reaching the minor planet earlier this year Dawn has been closing in slowly and is now returning images with a resolution of 140m per pixel.

Even the most committed alien hunters will now have to concede that the bright spots are not windows into an alien settlement or spacecraft, though scientists are still none the wiser as to what these areas really are.

The latest theories are that we may be seeing deposits of ice or salt but we'll need to wait for NASA to complete further analysis before we know exactly what we're looking at.



China's big plans for exploration of the Moon

China has revealed more details about its plans to explore the Moon over the next few years.

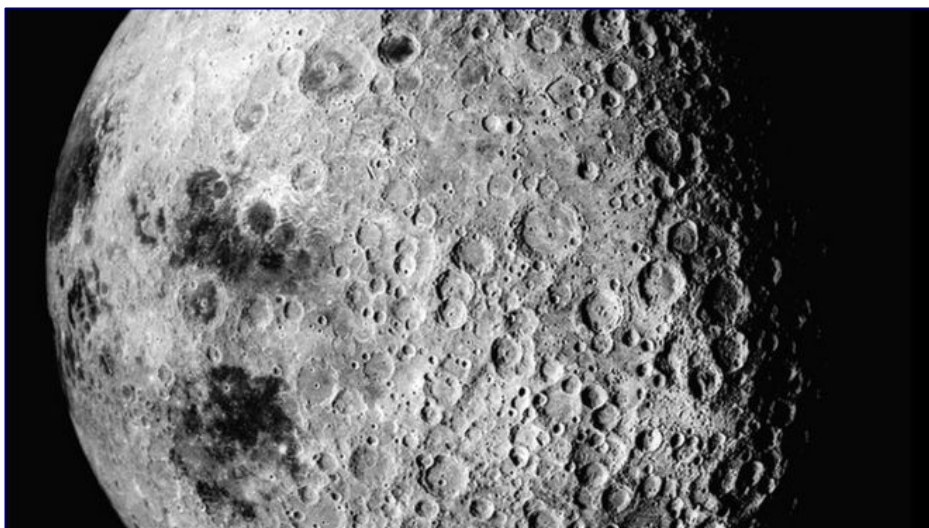
Until now the biggest event was due in two years, involving an unmanned mission to obtain rocks and soil from the Lunar surface and return them to Earth.

The latest plans

however are to be the first nation to operate a mission on the far side of the Moon. After touchdown a study of the geology of the landing site would follow with data being relayed back to Earth via a satellite in Lunar orbit.

The mission, known as Chang'e 4, is tentatively pencilled in for 2020 but could come even sooner.

Further ambitions also include building a radio telescope on the far side of the Moon where it would be completely shielded from interference produced by Earth's radio transmissions.



'In-orbit' robotic control tested

It is widely accepted that future space missions will require the remote operation of equipment by astronauts but such technology is difficult to put in place because of the inevitable time-lag between the astronaut instigating an action and the equipment receiving and carrying out the operation.



The first such activity has now been carried out aboard the International Space Station by Andreas Mogensen. The Danish astronaut remotely drove a rover in a Netherlands-based laboratory to an experiment board and, using a robotic arm, placed a peg into a hole. The manoeuvre was carried out from 250 miles above ground and involved a feedback system in his controls that helped him feel what he was doing. The use of a laser guide to assist him resulted in a highly accurate sub-millimetre outcome.

Further techniques and tests will be developed over the next few years with the intention that a reliable, robust method of carrying out remote operations of this nature will be possible. This will enable astronauts to take over when manual tasks and repairs cannot be completed automatically and to manually carry out the task instead.

New Horizon's next destination is selected

Following the amazing success of the New Horizons flyby of Pluto, the probe now has its sights set on a new destination. It is called 2014 MU69, and is a billion miles beyond Pluto.

Although the Kuiper Belt target is only 30 miles across it is thought to be one of the building blocks from which Pluto-like bodies were formed over four and a half billion years ago. Scientists will be able to re-use the tools that examined Pluto to extract the type of information that has changed our opinions of the 'ex-planet' and could shed light on the development of our solar system. The spacecraft carries enough hydrazine fuel for another flyby, and scientists say it could continue operating into the late 2020s or beyond. The mission's principal investigator, Alan Stern, said 2014 MU69 "costs less fuel to reach, leaving more fuel for the flyby, for ancillary science, and greater fuel reserves." In late autumn New Horizons will use its engines to change course toward 2014 MU69 with an expected encounter set for early 2019.



THE NIGHT SKY : THE PLANETS : October - November 2015

Right : Conjunctions 8th - 10th October with the Moon, Venus, Mars and Jupiter in the morning skies

MERCURY : The planet is at inferior conjunction on 30th. The Moon is close on 11th October. At greatest elongation west on 16th, which will be the best morning apparition this year. At superior conjunction on 17th November.

VENUS : Reasonably close conjunction with Mars and Jupiter on the morning of 25th September - *see map in last issue*. Moon to the south on 8th October and 7th November. At greatest elongation west on 26th October. Mars to the north on 3rd - 7th November.

EARTH ; BST ends 25th October, clocks go back 1 hour

MARS : By the bright star Regulus in Leo, and near Jupiter and Venus on 25th September - *see map in last issue*. With Mars being reddish and Regulus bright bluish, this should make an interesting contrast. Moon to the south on 9th October and 7th November. Mars is to the north of Jupiter on 17th October, close to Venus 3rd - 7th November

JUPITER : In the morning skies, near to Mars and Venus on 25th September - *see map in last issue*. Moon to the south on 10th October and 6th November. To the south of Mars on 17th October.

SATURN : Reaches opposition at the end of the month, so the last chance to glimpse the planet, already close to the horizon at Sunset, for a few weeks. Moon close on 19th September and 16th October

URANUS : At opposition on 12th October. Moon to the north on 22nd November

NEPTUNE : Was at opposition on 1st September. Moon to the north on 23rd October.

METEORS

Orionids active 16th - 30th October, peak around 21st. Northern Taurids peak 12th November Leonids active 15th - 20th November, peak 18th

THE MOON



New 13th October

First 20th

Full 27th

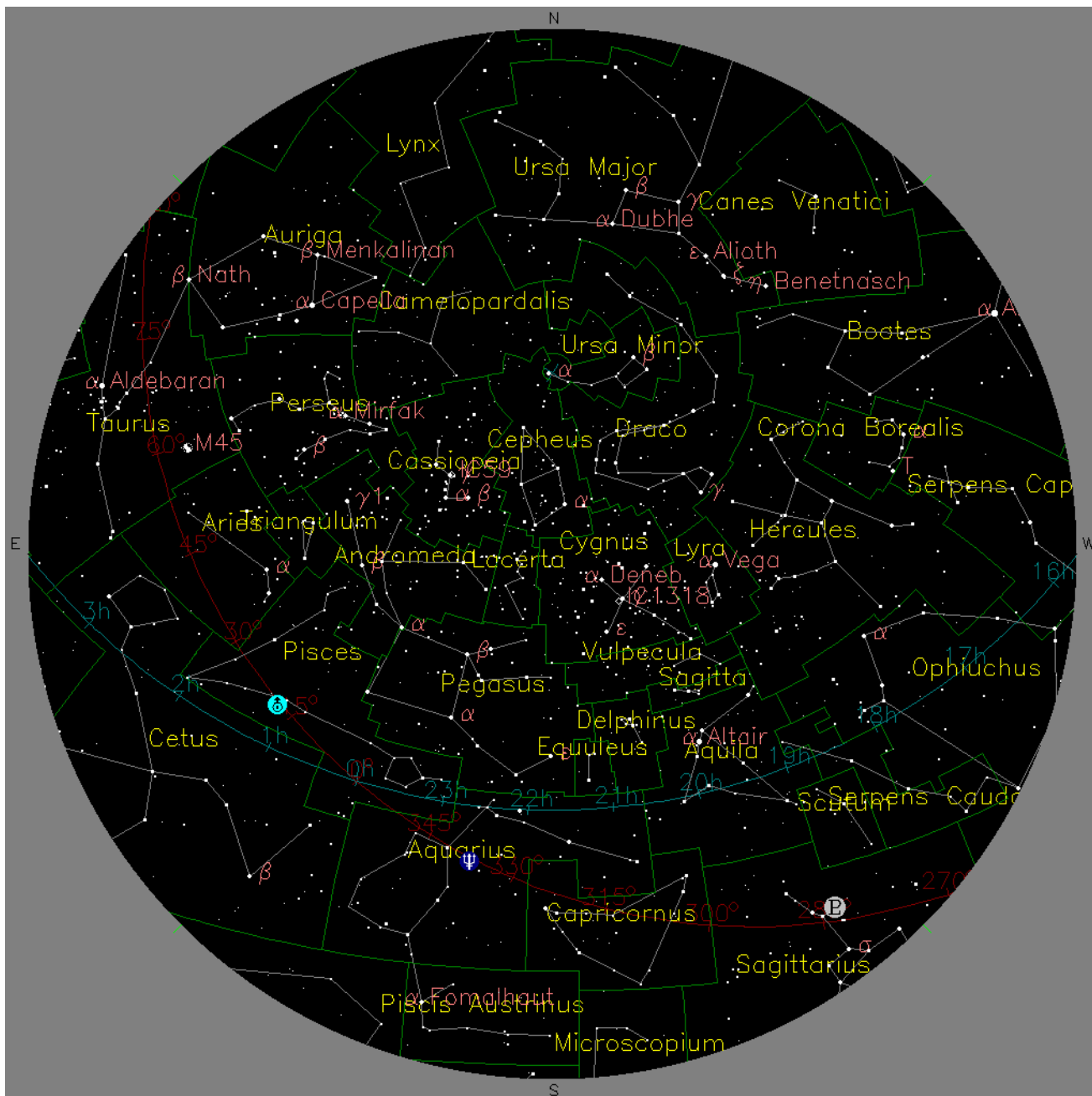
Last 3rd November









New 11th



THE NIGHT SKY : MAP

1st November 2015 : 19.00hrs GMT- UTC



| KEY | |
|--|--|
|  MERCURY |  SATURN |
|  VENUS |  URANUS |
|  MARS |  NEPTUNE |
|  JUPITER |  PLUTO |

STATEMENT OF ACCOUNTS 2013 and 2014

| INCOME | | 2010-11 | 2011-12 | 2012 (1) | 2013 | 2014 |
|--------|---------------------|-------------------|-------------------|-------------------|----------------|-------------|
| | | Mid Oct – Mid Oct | Mid Oct – Mid Oct | Mid Oct – End Dec | Jan - Dec | Jan – Dec |
| | Subscriptions | £242.50 | £225.00 | £49.50 | £133.50 | £107 |
| | TOTAL INCOME | £242.50 | £225.00 | £49.50 | £133.50 | £107 |

| EXPENDITURE | | 2010-11 | 2011-12 | 2012 (1) | 2013 | 2014 |
|-------------|-----------------------------|-----------------|-----------------|---------------|----------------|-----------------|
| | Fees for lecturers | £85.00 | £235.00 | - | £90.00 | - |
| | Magazine distribution | £495.00 | £429.00 | - | £54.90 | - |
| | Food etc for Christmas Meet | £100.00 | £42.00 | - | - | - |
| | Sundries | £5.00 | - | - | £25.00 (2) | £263.30 (3) |
| | Website Registration | - | £60.00 | - | £60.00 | - |
| | Video Projector | - | £283.00 | - | - | - |
| | TOTAL EXPENDITURE | £685.00 | £1049.00 | - | £229.90 | £263.30 |
| | BALANCE | -£442.50 | -£824.00 | £49.50 | - | -£156.30 |

| ACCOUNTS | | 2010-11 | 2011-12 | 2012 (1) | 2013 | 2014 |
|----------|---------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | Bank account | £4164.80 | £3373.77 | £2984.27 | £2871.37 | £2715.07 |
| | Cash/cheques in hand | £77.89 | £132.90 | - | - | - |
| | Sub totals | £4342.69 | £3505.67 | £2984.27 | £2871.37 | £2715.07 |
| | Less cheques drawn, but not presented | £398.00 | £439.00 | - | - | £444.94 (4) |
| | Revised | £3944.69 | £3067.67 | 2984.27 | £2871.37 | £2270.13 |

| | | | | | |
|----------------------------|----------|----------|---------|----------|----------|
| YEAR ON YEAR CHANGE | -£367.20 | -£877.02 | -£83.40 | -£112.90 | -£601.24 |
|----------------------------|----------|----------|---------|----------|----------|

Notes

(1) Previous accounting years were mid Oct to mid Oct. One accounting period of mid Oct 2012 - end Dec 2012 was prepared to enable future accounts to be calculated on full calendar years Jan – Dec.

(2) Details of payee are in previous Treasurer's records so unable to allocate to any particular expenditure category.

(3) £263.30 is made up of cheques for £210.00, £28.30 and £25.00. Details of payees are in previous Treasurer's records so unable to allocate to any particular expenditure categories.

(4) Comprising £200 food/drink for meetings and lecturer fees (JW), £244.94 magazine postage (KV).