Sky Notes: 2012 October & November

by Callum Potter

I do like observing at this time of year. Usually its still not very cold, but the nights are dark enough in the evening to allow some hours of observing before having to head to bed to get some sleep before work the next day. Although our weather seems to be getting more unpredictable, for those short of time, it's worth setting up or opening the observatory and letting the telescopes cool down as early as possible when the evening ahead may be clear.

I often find the early evening at this time of year is better: as the night wears on the transparency goes down, and the mist comes in – though this could be due to being near the Severn and Avon rivers, not a factor I took into consideration when we moved to our current home!

The clocks change on October 28 with the clocks going back one hour, and we return to GMT.

Sun and Moon

The **Sun** continues to show considerable activity, so observations with suitable equipment will be worthwhile. As we move towards winter, there should be more chance to see any aurora that might occur – although it is difficult to predict when an aurora might be seen, subscribing to one of the many e-mail alert services will help keep you up to date with what's happening.

The **Moon** is new on October 15 and November 13, and full on Oct 29 and Nov 28.

There is a penumbral lunar eclipse on November 28. In a penumbral eclipse, the Moon passes through the lighter outside portion of the Earth's shadow (the penumbra), and not the central dark portion (the umbra), which means that it will be difficult to see any difference in the Moon's appearance. In the UK the Moon rises in eclipse at around 16:15, but with final contact at around 16:51 it seems unlikely that UK observers will be able to see much of this, and perhaps it will not really be noticeable at all. Those in the far east and Australia should be better placed – there are more details in your BAA *Handbook* for 2012 should you wish to find out more.

Planets

Mercury is not available in October, but towards the end of November it should be possible to find it in the morning sky. However, it will be at is best in December, so more details on that next time.

Venus continues to be bright in the east in the morning sky. On October 12 and November 11 the waning crescent Moon is nearby, and this could make a nice photo-shot.

Mars is not really available for viewing now. It will be the second half of 2013 before Mars becomes available again.

Jupiter is the best placed of the planets, as it heads towards opposition in December. It is located in Taurus, and there may be nice wide-field photo opportunities with the Hyades as the 'arrow-head'. It increases in apparent diameter from around 43" at the beginning of October to around 48".5 at the end of November. Always a popular target for astro-imagers being both bright and large, it will be best to try to image when its at its highest altitude and these months it will be possible to do this when it transits the meridian.

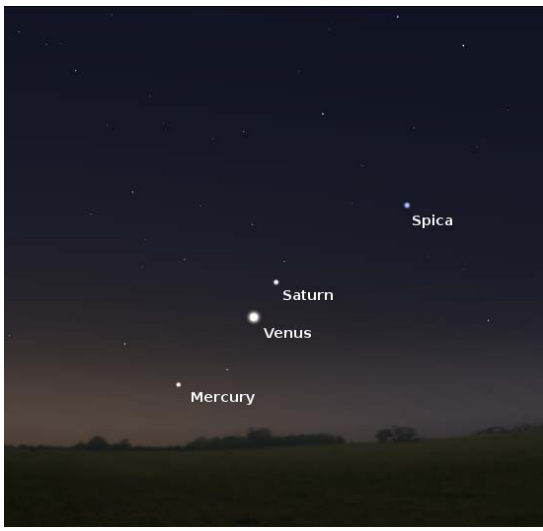
Jupiter has a few more close encounters with the Moon: look out on October 5, November 1/2, and November 28/29. No more occultations take place however.

Saturn is not observable in October being too close to the Sun, but starts to reappear in the morning sky in November, however it will not achieve a very high altitude before dawn.

From November 24 onwards, Saturn makes a nice little dance with Venus. The pair can be used to locate Mercury near the horizon, and with Spica in the vicinity too, there should be a number of good photo-opportunities. (See image below of the planets and Spica in the morning sky on Nov 30.)

Uranus and **Neptune** are becoming more difficult to view, particularly into November, being low and heading west, but if you have not had a chance to see these try now as it will be some while before they are available again.

If you are checking the position of Jupiter with your planetarium program, you might notice that the minor planet 4 Vesta is nearby. Although below naked eye visibility(around mag 7), you may be able to locate it with binoculars or a small telescope. It is located in Taurus near the border with Orion, but you will need to observe over a couple of nights to try and spot the 'moving star' to be sure you have captured it.



Looking southeast on the morning of 2012 November 30. *Stellarium*.

Radio Astronomy Group Annual Meeting 2012

Saturday October 27, 10:30–17:30

National Space Centre, Leicester LE4 5NS

Prof Andrew Lyne from the Jodrell Bank Centre for Astrophysics Pulsar Team will discuss how these massive cosmic flywheels make superb clocks for exploring some of the fundamental laws of physics that determined how the Universe evolved.

Dr Chris North of the Cardiff University School of Physics and Astronomy and co-presenter on *The Sky at Night* will talk about astronomy in the far-infrared, including the technologies used for the Herschel Space Observatory, the Planck satellite, the JCMT and the ALMA telescope array.

Dr David Morgan will introduce the theory and practice of constructing a radio interferometer and its use for observing radio galaxies against the background of the Milky Way.

Tony Abbey will compare the use of simple, low-cost Software Defined Radio (SDR) devices for receiving hydrogen line emissions.

Paul Hyde will explore some of the practical aspects of observing meteor scatter and how this relatively simple technique can be used to monitor activity.

There will be additional papers on other aspects of the Group's work together with displays of hardware and posters. Our two main speakers will also be participating in a lunchtime Q&A session. A provisional programme is available at **http://www.britastro.org/radio/** and tickets can be obtained via the BAA Office or from Paul Hyde at **radiogroup@britastro.org**

Tickets are £15 (£12 for BAA members) and include a buffet lunch, afternoon tea, admission to the NSC attractions (apart from the Planetarium) and free parking.

M77 imaged by Paul Downing. C14 SCT at f/10 +ST10 LRGB.

New 'Sky Notes' writer needed

As you may know, Stewart Moore is standing down as Deep Sky Section Director in early 2013, and I have been invited to replace him in this post. It would be difficult to combine Section Director responsibilities with writing this column, so I shall be relinquishing responsibility for the 'Sky Notes' as soon as we can find a new author for them.

If you are interested and could commit to providing the 'Sky Notes' for the *Journal* every two months, please contact the *Journal* Editor, Hazel McGee, at **hazelmcgee@btinternet.com**.

Meteor showers

Did you manage to observe any Perseids in August? The weather was not kind here in rural Worcestershire, though we did have a couple of clear nights prior to maximum. I was out observing, but only saw one! Though I was not really 'patrolling' for meteors. In the coming two months we have a few more opportunities for meteor observing. The rates are not so high, but observations will still be worthwhile.

In October we have the favourable maximum of the Orionids, around Oct 21/22. Orionids are fast meteors and frequently persistent trails may be seen. The Taurids have a double maximum on November 5 and 12, but differ from the Orionids in showing noticeably slower speed.

Also in November the Leonid shower has a maximum on around November 17/18 – Leonids are very fast meteors, often very bright and also with persistent trains. Leonids are only visible after about 23:30 when the radiant (in Leo) rises, so are best observed in the early morning hours.

If you manage to observe any of these showers this autumn (see **www.britastro.org/meteor** for hints on meteor observing) do send your results to the Meteor Section Director, Dr John Mason, at **meteor@britastro.org**

Deep sky

At this time of year many will be anticipating the winter constellations, Auriga, Taurus and Orion which are just around the corner. And many will probably stay up all night or get up early to view these favourites, but there are many other fine sights in the sky which are at their best in October and November, and don't deserve to be ignored.

One of these is Cetus, commonly known as 'the whale' but also as the 'sea monster' – which is perhaps a more accurate description from legend. Cetus is one of the biggest constellations (fourth largest by area of sky) but does not have many bright stars and does rather meander. A notable star is Omicron Ceti, Mira, the archetype for this class of slow pulsating red giant variable stars.

When looking towards Cetus we are looking in completely the opposite direction to the galactic centre, towards the South Galactic Pole (which is actually in nearby Sculptor). This means that there are not many 'galactic' objects to be found here – bright or dark nebulae, open or globular clusters, planetary nebulae. However the constellation does provide a great window to the outside of our galaxy, to a myriad of galaxies beyond.

The brightest external galaxy to be found in Cetus is Messier 77 – the only Messier object in the constellation. It is quite easy to find near Delta Ceti. Visually it appears pretty much like a regular face-on spiral galaxy, but in fact the core is very energetic (it has an active galactic nucleus), and it is one of the class of galaxies known as 'Seyferts', after the American astronomer Carl Seyfert. He noticed that the spectrum of the nucleus of some galaxies has emission lines of highly ionised gas, and today we think that the cause is a supermassive black hole at the centre of the galaxy.

There are a number of galaxies gravitationally connected to M77 to form a small group. Of these NGC 1055 appears nearby, and is a very nice edge-on spiral. Also the face-on barred spiral NGC 1073 is a member of the group.

For something a little different, but still extragalactic, search out IC 1613, an irregular dwarf galaxy that is a member of our own local group of galaxies.

I did mention that the area is rather devoid of local nebulae, and in fact there is only one object of note – the planetary nebula NGC 246. This is sometimes known as the Skull Nebula, but I am not really sure I see it that way. It is quite faint, around mag. 8.5, and small (diameter around 4"), and a larger scope and dark sky will help pick it up, as will an OIII filter. It should be within easy reach of most astro-imagers.

Callum Potter

Planetary nebula NGC 246 imaged with a 50cm Ritchie–Chretien, Kitt Peak Observatory. *Jeff Cremer/Adam Block/NOAO/AURA/NSF*