

Sky Notes: 2011 April & May

by Callum Potter

Spring is one of my favourite times of year to observe. Although the nights are starting a bit later, the slightly warmer weather makes visual observing much more comfortable.

As I was researching these Sky Notes, the dearth of planets to observe was quite surprising. Only Saturn is well positioned, and I started to wonder how often the absence of many of the planets arises. No doubt someone with a more 'computing' orientation could tell, but in my recollection it's quite a rare event. So, without many of the planets around, I thought I would mention a few little projects you might like to pursue.

Sun and Moon

The Moon is new on April 3 and May 3, and full on April 18 and May 17. On April 2 the Moon will be at its maximum apogee for the year. I remember in my first year at University doing a practical exercise determining the Moon's orbit by measuring her apparent diameter from photographs. Of course using a digital SLR to capture images of the Moon through a lunation would make the measurement lot easier than using a plastic ruler like we did. So it would be interesting to capture a series of images whenever the Moon is available, and see how the size changes. Of course be sure to use exactly the same optical arrangement for each shot.

On April 7 there is an occultation of the 4th magnitude star 37 Tau, shortly followed by that of 39 Tau, which is somewhat fainter at mag 5.9. And on April 15 there will be an



Activity on the Sun imaged by David Arditti on 2011 March 2 using a B1200 blocking filter.

occultation of 87 Leo, another 4th mag star.

The Sun is certainly worth following, as activity seems to be on the increase. In recent months there has been much speculation about aurorae being visible from the south of the UK. But for such a 'mid-latitude' aurora to be visible requires quite a major coronal mass ejection to hit us 'face-on'. It is worth signing up to alert services though, and you can now follow @aurorawatchuk on Twitter which will automatically post alerts when their magnetometers indicate a significant disturbance to the Earth's magnetic field.

Planets, comets and meteors

As I mentioned above only Saturn is well placed for observation during these two months, and is at opposition on April 4. As I write this, the recent disturbances on Saturn's disk are fairly easy to observe, so continued observation throughout this apparition is recommended. The rest of the planets are poorly positioned.

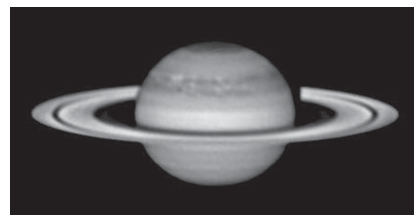
There are no bright comets around, though maybe we can look forward to Comet 2010 X1 Elinen which could become visible with the naked eye in the autumn. Enthusiasts might like to try and pick it up now, but it will be faint for a few months and require a CCD camera for detection.

The April Lyrids meteor shower is another indicator of Spring with a maximum on the night of April 22/23, but the Moon will have just passed full, and will interfere with observations, so the shower is classified as unfavourable this year.

Variable stars

If you have a digital SLR camera, you might like to try some variable star photometry. This can be done for bright stars using a camera just mounted on a tripod with a short exposure. To test your technique there are a few binary star minima which are favourable over the next couple of months. Beta Persei (Algol) will have favourable minima on April 17 & 19, and on May 10.

RZ Cassiopeiae has many through the two months, and these are detailed in your BAA *Handbook*. Des Loughney wrote an excellent paper on the technique in the June 2010 *Journal*, and there is another good article in the 2011 April *Sky & Telescope* (in which Des gets a mention too). Bright variable stars are probably under-observed, so if you do make some observations, please send your results to the Variable Star Section.



A recent image of Saturn in the infrared by Anthony Wesley, 2011 March 2.

Deep sky

To my mind spring marks the start of the galaxy season. There is a huge swathe of galaxies as you move down from Canes Venatici, through Coma Berenices and into Virgo. Often making an accurate identification of a found galaxy is quite a challenge in its own right. Computer charting software or a good star atlas are essential aids for navigating your way around.

As a starting point M51 in Canes Venatici is such a classic object that I never tire of observing it. And it has such a history. Messier himself is credited with its discovery, but Lord Rosse at Birr Castle in Ireland was the first to note the spiral structure in his 72-inch (1.82m!) 'Leviathan' telescope. There is a small companion galaxy, known as NGC 5195, and for quite some time there was debate over whether the companion was actually related to the large spiral, or if it was just a foreground or background object. Observations at radio frequencies, though, have positively identified that it is a true companion, interacting galaxy.

Moving south from M51 we come to M63, the Sunflower Galaxy, a very nice mag 8.6 object, which is also part of the M51 group. And further south still we come to M94, another nice face-on spiral, at around mag 8.2. And we have still not left Canes Venatici.

As we move south from CVn to Coma Berenices, we can follow a string of 9th and 10th magnitude galaxies and eventually we reach M64, the Black Eye Galaxy. This has a particularly remarkable dust lane structure offset from the centre, that gives it its common name. M64 is quite an active galaxy with many regions of star formation, which may be the result of an interaction with a companion. M64



M100 imaged by Peter Carson using a 100mm refractor and a Starlight Xpress HX916 CCD camera. Total exposure 1h 18m: 55m luminance 1x1 and approx 7m each colour binned 2x2. Luminance sub-exposures 5 mins long. Taken at Kelling Heath Spring Star Camp, 2008.

is thought to be in a small group with M94, and a few other galaxies in Canes Venatici, though some may be poor associations.

Whilst observing in Coma its well worth seeking out M53 – not a galaxy, but a rich mag 7.6 globular cluster. For those wanting more of a challenge, seek out NGC 5053, a fainter (mag 9.4) looser globular cluster, which is just a degree southwest of M53. Interestingly both clusters are about the same distance from us, about 53,500 light years.

Moving south and west from M53 we move into the Virgo cluster of galaxies, and it

is now so easy to get lost amongst the plethora of galaxies to be found here. The most northerly galaxy of the group is M85, which is still actually in Coma Berenices. For those with a larger scope or using a CCD the nearby galaxy NGC 4394 is separated by about 7 arcminutes, but at mag 11.2 it is more of a challenge.

There are so many galaxies here that to describe them all would require many more pages than are available, so just a few highlights. M100 is one of the brightest galaxies of the cluster, at around magnitude 9.3, and is another pretty face-on spiral. M99 is

known as the Pinwheel Galaxy, another face-on spiral, but looser than M100, and somewhat asymmetric. NGC 4435 and NGC 4438 make an interesting pair known as ‘The Eyes’. NGC 4438 is the larger of the pair, and slightly brighter, but the pair are interacting and make for an interesting scene. And a mention for M87, the large elliptical galaxy known also as Virgo A. Two remarkable features to locate are the bright jet, which is obliterated in long exposure images, but can be seen visually or with short exposures, and also the companion globular clusters – over 4000 of these have been observed in the halo around the galaxy.

It would be a huge challenge to image or draw the Virgo Galaxy Cluster in its entirety at large scale, but if you start early in the season, and are lucky with clear nights, then the results could be really interesting. I wonder if anyone is up for that challenge?

Callum Potter

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