

SPACEWATCH

the newsletter of the Abingdon Astronomical Society

Next Talk
12th December 2016
Video meteor Observing
Richard Fleet
(Newbury Astronomical Society)

EDITORIAL

Unfortunately no images were submitted from members for inclusion in this month's SpaceWatch, I assume because of poor weather. I have included Steve Creasys image of the full moon. Not the change of speaker for next month.



THE NIGHT SKY THIS MONTH

by **Bob Dryden**

Mercury: Technically, Mercury will be undergoing an evening apparition during this session but it will be very hard to see. It will be bright however, varying between -0.6 and -0.4 magnitude, so when it reaches its highest altitude of 8° by 12th December you will have a short window in which to hunt for it. By mid December Mercury will be in Sagittarius and will set about an hour after the Sun. During November the little planet will be setting around 30 minutes after the Sun so will be very difficult to find against a bright twilight sky. Mercury passes about 2° below Saturn on 24th November but it is extremely unlikely you will see this as they will be so low and the sky will be so bright.

Venus: Venus continues to creep along the south western horizon, increasing its solar elongation to 45° by mid December. Fortunately the planet shines at a very bright -4.2 magnitude which means, even though it is very low, it can be seen quite easily. Currently about 10° above the horizon at sunset in the constellation of Sagittarius, Venus slowly gains altitude as the session progresses and moves in to Capricorn on 7th

December. By mid December the planet is 16° high and is above the horizon for a good 3 hours after sunset. On 3rd December the crescent Moon is approximately 5° above Venus.

Mars: Mars refuses to end this apparition and continues to move along the ecliptic rapidly, keeping pace with the Sun. As a result, it stays in the evening sky through out this session, in fact, gaining height as time goes by. It starts 18° high at sunset, in Capricorn, approaching culmination in the south. It sets just under 5 hours after the Sun. By mid December, it is 22° high at sunset, still just approaching culmination (at 23° altitude), but now it sets just over 5 hours after the Sun.

Mars does fade from +0.5 magnitude to +0.8 magnitude, but this it is still easily a naked eye object. Telescopically, the apparent size of the disc shrinks to 6" by December so surface details should be visible in good seeing. On the 5th December the waxing crescent Moon is about 3° from Mars.

Jupiter: If you want to see Jupiter then you will have to get up early in the morning as it is in Virgo, rising about 4 hours before the Sun in November, increasing to over 5 hours by December. Shining at -1.8 magnitude, it is not hard to find Jupiter, and it is around 30° above the horizon by sunrise in the south east. On 25th November the crescent Moon is about 1.5° from Jupiter. By the end of this session on 12th December Jupiter will be approximately 5° from the bright star Spica.

Saturn: Reaching solar conjunction on 10th December, Saturn is not visible this session.

Uranus & Neptune: Both of these planets are well placed in the evening sky, Uranus in Pisces and Neptune in Aquarius. Shining at +5.7 magnitude and +7.8 magnitude respectively, all you need is a finder chart and a pair of binoculars to see them. Uranus culminates at a very respectable 46° around 22.00 UT in November and about 20.00 UT by mid December. So you have all the first half of the night to look for it. Neptune is somewhat lower, culminating at 29° above the southern horizon. Being further west, Neptune also sets earlier than Uranus (about midnight in November, and around 22.00 UT mid December) so it is probably best if you look for this one first.

Meteors: Although past the date of maximum, the Taurid meteor shower is still active until 30th November. Hourly rates are low (<10 an hour) but Taurid meteors are often bright and noticeable. The only other major shower this session is badly affected by moonlight. The Leonids can be seen between 15th and 20th November and maximum occurs at 04.00 UT on 17th. Normally you could see around 20 meteors an hour

but that is unlikely this year as the Moon will be very bright being just 3 days past Full and above the horizon virtually all night.

Occultations: The night of 12th/13th December is an interesting one for occultations as the Moon passes over part of the Hyades cluster in Taurus.

During the evening of the 12th Gamma Taurus is occulted at 21.39 UT at which time the Moon will be over 50° high in the south. Gamma is +3.7 magnitude which means you will only need a small telescope to see the event despite the Moon being just a couple of days before Full.

Later that night (or, more accurately, in the morning) at 02.08UT Theta¹ Taurus is occulted followed at 02.22 UT by Theta² Taurus. They are +3.8 and +3.4 magnitude respectively. By then the Moon will be 35° high in the west.

At 05.23 UT the main event occurs when Aldebaran itself is occulted. Aldebaran then reappears from behind the Moon at 05.53 UT. The star is very bright at +0.9 magnitude and the occultation might be visible to the naked eye but the brightness of the Moon might make it necessary to use binoculars. The Moon will only be 7° above the horizon by the time Aldebaran reappears.

Asteroids: Our old friends Ceres, Vesta, and Melpomene continue to be visible during this session.

1 Ceres is fading, going from +7.6 to +8.2 magnitude as it crosses Cetus.

4 Vesta brightens nicely. After starting at +7.6 it reaches +7.0 magnitude by mid December. Vesta is to be found in Cancer. 18 Melpomene is also in Cetus and is fading. In mid November it is +8.4 magnitude but decreases to +9.1 magnitude by mid December.

Finally, 18 Melpomene can be found in Pisces until 16th August when it enters the constellation of Cetus. In early September is very close to 1 Ceres. Starting at a rather faint magnitude of +10.3, by September it will have brightened to +8.7 magnitude.

Noctilucent Cloud: Don't forget summer is noctilucent cloud season so keep an eye on the northern horizon for bright, silvery white, spidery type cloud that is still visible long after the Sun has set.

Just one brief note there is a bright(13th magnitude) supernova in NGC 4125 that some of the imaging members may like to go after. More details at <http://www.skyandtelescope.com/observing/dual-supernovae-light-up-june-nights/>

LAST MONTHS TALK

by Gwyneth Hueter

September's talk

Stephen Tonkin lectures in Astronomy at Brockenhurst College and is a member of Wessex AS. His talk was on 'Binocular Astronomy', and he has written a whole book on the subject.

As someone who has long known that beginners should always invest in a decent pair of binoculars before ever trying to buy a telescope I was still impressed by the nuggets of information in this talk.

Advantages of using binocular as opposed to mono vision:

- Statistical summation gives binocular vision a 1.4 x advantage over monocular vision.
- False stereopsis is the depth effect that you can get when looking at a deep sky object, even though it is so far away
- You have a blind spot in each eye, but when you are looking at something with both eyes, you won't necessarily end up seeing something with the same part of each eye.

Useful nuggets:

- Your thumb joint fits nicely against eye socket, which makes it easier to hold binoculars steady
- With large binoculars hold one side with both hands and rest the other side on your arm.
- You can wear a cap and hold a finger from each hand over the front of the cap and that can keep binoculars steady.
- A monopod with a trigger grip head is actually a very good stable base for heavier binoculars. He recommends Manfrotto.
- Make a long dew cap for mounted binoculars by wrapping black material round the end of them.
- Get binoculars where each side has independent focussing. That makes it easier to focus on astronomical objects. Cap each side while you focus with the other.
- For best quality in smaller binoculars go for roof prisms, which do not bend the light so much and are easier to focus. The limit in aperture is limited by the distance between our eyes, giving about 55mm. Porro prisms fold the light path and make it possible to have much larger apertures. Binoculars with Porro prisms will be heavier and cheap ones can lose collimation easily.

He also told us not to be fooled by sellers' claims of certain standards, because the standards are not regulated, so if you're told the optics are fully coated this does not tell us how many coatings the optics have. The best optics have seven coatings on all surfaces. You may think that all 10x50 binoculars have an objective glass 50mm in diameter but if you hold a piece of graph paper over the end of the binoculars you may be surprised and find the aperture is smaller. Shine a torch into the binoculars at 6" distance and the light cylinder that comes through the eyepiece will also tell you how big the

aperture is. Another giveaway that any binoculars will be rubbish is if they have an orange bloom. This is to remove the red end of the spectrum. As red light scatters more easily and will show up defects in the focussing it is easier to put the bloom on, thereby reducing the amount of red light reaching the eye.

Mr Tonkin has a website = www.binocularsky.com, where he goes into lots of details regarding binocular specifications.

FURTHER DISCUSSION

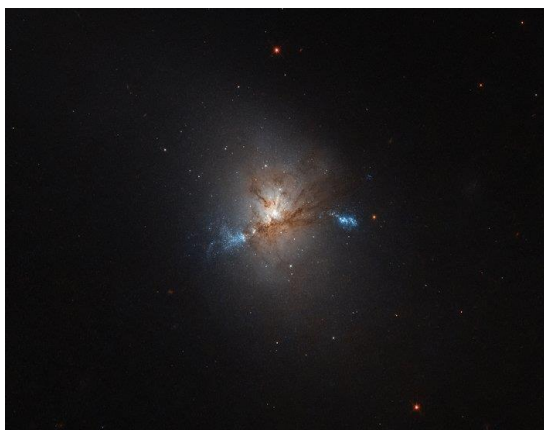
Why not take a look at our website? It's at: www.abingdonastro.org.uk.

If you are not already on our internet mailing list, then why not log on to YahooGroups. The list is called 'abingdonas'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. To read through previous messages click on:

<http://groups.yahoo.com/group/abingdonas/>.

To join the abingdonas list, please go to <http://www.yahogroups.com>. You can also unsubscribe from the list here.

To post messages to the list, please send them to abingdonas@yahogroups.com. Please note that you will



NGC 1222, seen in this image taken with the [Wide Field Camera 3](#) on board the NASA/ESA [Hubble Space Telescope](#) (HST), is a galaxy with a rather eventful story to tell. NGC 1222 has been described as a peculiar example of a type of galaxy known as a [lenticular](#) galaxy. Typically, this kind of galaxy would present a rather smooth appearance on the sky and would consist mostly of old, reddish stars. A bit dull, perhaps.

But NGC 1222 is certainly not a typical member of its class — and it's anything but dull. Observations show the characteristic features of very recent star formation on a huge scale — an event known as a [starburst](#). The reason for all this violent activity is caused by the fact that NGC 1222 is not alone. It actually contains three compact regions, each of which appears to be the central nucleus of a galaxy. Astronomers think that NGC 1222 is in the process of swallowing up two much smaller dwarf galaxies that strayed too close to it. It is likely that the encounter was the trigger for the starburst in NGC 1222, bringing in fresh supplies of gas that are now fuelling the burst of star formation.

Although its peculiarities were first seen in photographic images, these were not able to reveal the level of fine detail that can be recovered by Hubble. The image taken by Hubble allows us to see an astonishing amount of structure in this galaxy, emphasising its colourful history. Against the smooth background of old stars that was the original lenticular galaxy, we can clearly see dark filaments of dust and bright filaments of gas, both associated with the powerful star formation process.

need to sign up with a YahooID if you do not already have one. You can do this on the above page.

Further information about the mailing list can be found on the abingdonas webpage at :

<http://groups.yahoo.com/group/abingdonas/>.

DATES FOR YOUR DIARY

21st November 8pm Beginners' Meeting in the Main Hall., talks to include Artificial Satellites, Celestial Co-ordinates and Novae.

Observing evening: FCN Nov 28th-30th. Frilford Heath Golf Driving Range. See website for details on how to find it.

The editor of "SpaceWatch" is Owen Brazell, who would very much appreciate your stories & contributions. In particular whilst many fine images are being posted on the discussion group it would be nice to have some in the SpaceWatch. Please send any news, observations, photos, etc. to:

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