



Nene Valley Astronomical Society

Stargazer Newsletter

June 2023

neneastro.org.uk



The Cat's Eye Nebula (Caldwell 6) in the constellation of Draco.

Image: Hubble Space Telescope/Chandra X-Ray Observatory



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Northamptonshire's Free To Join Astronomical Society



Forthcoming Society Meetings

Monday 5th June



Solar Observing & Club Night Meeting. If conditions permit, we'll carry out some solar observing so feel free to bring along your observing equipment!

Chelveston Village Hall, Caldecott Road, Chelveston NN9 5AT at 8pm. Admission £3.

Monday 19th June



Meeting at Chelveston Village Hall, Caldecott Road, Chelveston NN9 5AT at 8pm. Admission £5.

In a change to our previous advertised speaker, Bob Baldwin will be joining us to speak about 'Rocket Propulsion & Space Hardware'.

Monday 3rd July



Solar Observing & Club Night Meeting. If conditions permit, we'll carry out some solar observing so feel free to bring along your observing equipment! Steve Williams will also be guiding us around 'The Summer Sky'.

Chelveston Village Hall, Caldecott Road, Chelveston NN9 5AT at 8pm. Admission £3.

Monday 17th July



Jerry Workman FRAS returns to the society to speak to us about 'The Moon'.

Chelveston Village Hall, Caldecott Road, Chelveston NN9 5AT at 8pm. Admission £5.

Society Officers

Vice-Chair: Steve Williams

Secretary: Kevin Burton e-mail: events@neneastro.org.uk

Events Co-ordinator: John Wynn-Werninck

Membership: Paul Blackman e-mail: membership@neneastro.org.uk

Treasurer: David Jones

Web Site / Stargazer Editor: Steve Williams e-mail: newsletter@neneastro.org.uk

Committee Member & Refreshments: Alec Parker

Comment From Your Vice Chair

As this is the first edition of the Stargazer since April's Annual Review Meeting, I would like to record my thanks to your previous Chair, Peta, who stood down from the role at the meeting. Peta has been a guiding light for the society over a number of years having previously been our Speakers Organiser. As a small token of appreciation, we presented Peta with a book token at the ARM.

Encouraging members to come along and participate in an Annual Review Meeting is rather a challenge and whilst numbers were slightly higher than previously this year, I would like to encourage all members to become involved. After all any society is only as good as it's members input and ideas and these need to be encouraged.

This brings me onto the subject of committee members. Whilst I was elected to the position of Vice-Chair, the position of Chair is now vacant which needs to be filled and I would also like to encourage another couple of members to join Alec and act as 'Committee Members' to ensure that we continue to operate our existing events and plan new ones. Joining the committee does not involve any great input of time (we don't have regular committee meetings for instance), but new ideas and input to avoid stagnation are needed. If you are interested and would like to find out more then please speak to either Kevin or myself.

Steve Williams

Noctilucent Clouds

Attend any astronomy meeting or enter an astronomy forum and more often than not you will hear an astronomer moaning about the amount of clouds! Come the summer though and talk turns to the subject of Noctilucent Cloud.

Noctilucent Clouds reside high up in our atmosphere at altitudes of around 76 to 85km and are observed for a few weeks around the time of the summer solstice. They are only visible when the observer and low altitude clouds are in darkness, but since Noctilucent Clouds are still in sunlight they shine brightly towards the Northern horizon.

Noctilucent clouds are typically colourless or pale blue and are formed from ice crystals in the meosphere. The first recorded observations of the clouds dates back to 1885 and they appear to be gradually increasing in frequency. Recent studies suggest that increasing atmospheric methane emissions are producing additional water vapour once the methane reaches the meosphere.

The clouds may show a variety of structure, and typically are visible when the Sun is between 6 and 16 degrees below the horizon. Whilst Noctilucent Clouds are not guaranteed to be visible on a given night, it is worth keeping an eye out to the north-west around 90 minutes after sunset and again toward the north-east around 90 minutes before sunrise.

Naked eye and possibly low power binoculars will provide a good view. Short timed images can also be taken and if a number of images are taken every 30 seconds or so, it is possible to produce a video showing movement with the clouds structure.



Hubble Views



The jellyfish galaxy JW39 hangs serenely in this image from the NASA/ESA Hubble Space Telescope. This galaxy lies over 900 million light-years away in the constellation Coma Berenices and is one of several jellyfish galaxies Hubble has been studying over the past two years.

Despite this jellyfish galaxy's serene appearance, it is adrift in a ferociously hostile environment: a galaxy cluster. Compared to their more isolated counterparts, the galaxies in galaxy clusters are often distorted by the gravitational pull of larger neighbours, which can twist galaxies into a variety of shapes. If that was not enough, the space between galaxies in a cluster is also pervaded with a searingly hot plasma known as the intracluster medium. While this plasma is extremely tenuous, galaxies moving through it experience it almost like swimmers fighting against a current, and this interaction can strip galaxies of their star-forming gas.

This interaction between the intracluster medium and the galaxies is called ram-pressure stripping and is the process responsible for the trailing tendrils of this jellyfish galaxy. As JW39 moved through the cluster, the pressure of the intracluster medium stripped away gas and dust into long trailing ribbons of star formation that now stretch away from the disk of the galaxy.

Astronomers using Hubble's Wide Field Camera 3 studied these trailing tendrils in detail, as they are a particularly extreme environment for star formation. Surprisingly, they found that star formation in the 'tentacles' of jellyfish galaxies was not noticeably different from star formation in the galaxy disk.

Text credit: European Space Agency (ESA)

Image credit: ESA/Hubble & NASA, M. Gullieuszik and the GASP team

Hubble Views



A vast galaxy cluster lurks in the centre of this image from the NASA/ESA Hubble Space Telescope. Like a submerged sea monster causing waves on the surface, this cosmic leviathan can be identified by the distortions in spacetime around it. The cluster's enormous mass curves spacetime, creating a gravitational lens that bends the light from distant galaxies beyond the cluster. The contorted streaks and arcs of light we see in this image are the result. A host of other galaxies surrounds the cluster, and a handful of foreground stars with tell-tale diffraction spikes are scattered throughout the image.

This particular galaxy cluster, called eMACS J1823.1+7822, lies almost nine billion light-years away in the constellation Draco. It is one of five exceptionally massive galaxy clusters Hubble explored with the aim of measuring the strengths of these gravitational lenses, which would provide insights into the distribution of dark matter in galaxy clusters. Strong gravitational lenses like eMACS J1823.1+7822 can help astronomers study distant galaxies by acting as vast natural telescopes which magnify objects that would otherwise be too faint or distant to resolve.

This multiwavelength image layers data from eight different filters and two different instruments: Hubble's Advanced Camera for Surveys and Wide Field Camera 3. Both instruments can view astronomical objects in just a small slice of the electromagnetic spectrum using filters, which allow astronomers to image objects at precisely selected wavelengths. The combination of observations at different wavelengths lets astronomers develop a more complete picture of the structure, composition, and behaviour of an object than visible light alone would reveal.

Text credit: European Space Agency (ESA)

Image credit: ESA/Hubble & NASA, H. Ebeling

Nene Valley Night Sky - June 2023



Generated using Stellarium (Stellarium.org), the above star chart shows how the evening night sky will look on June 1st at 1am, June 15th at mid-night and June 30th at 11pm.

As the constellations of late Spring (Leo and Virgo) descend towards the West, the short nights of mid-summer offer their delights for viewing. Whilst astronomically dark nights do not return until the third week of July, the month of the summer solstice offers a number of bright star clusters and double stars that can be enjoyed.

Crossing the meridian at the time of our chart is the constellation of Hercules, the fifth largest in area of the 88 defined constellations. Hercules is home to two of the northern hemisphere's finest globular clusters. M13 (magnitude 6) is the brightest, whilst M92 is only slightly fainter (magnitude 6.5), both will show up nicely in a small telescope or pair of binoculars. Whilst Hercules is famed for these two globulars, within its boundaries you can also find another globular in the form of NGC 6229 (magnitude 9.5) or if you fancy something a little different then track down NGC 6210 a ninth magnitude planetary nebula visible as an elliptical disc through telescopes of 3" aperture and above.

Hercules also includes double stars for your enjoyment. Alpha Herculis is an irregular variable star with a 3rd/4th magnitude primary accompanied by a blue star of magnitude 5. Zeta Herculis is worth observing through a medium sized telescope - the primary star is yellow of magnitude 3 with a orange companion of magnitude 6.

Steve Williams

Nene Valley Night Sky - June 2023

Full Moon: 4th June

New Moon: 18th June

The Sun: Continues to offer rewarding observing with a series of major sunspot groups having been visible over recent weeks. Use either the projection method or a certified solar filter to view. Our June and July Club Nights will both feature practical Solar Observing sessions, so if you'd like advice then why not come along to these.

Mercury: The innermost planet is low in the north-east in the morning twilight at the start of the month. The extended morning twilight and low altitude of Mercury will make for a very difficult spot.

Venus remains a brilliant object in the western evening sky, however it is now starting to lose altitude each day as it heads toward its August date with Inferior Conjunction. At magnitude -4.4 on 15th June and setting just after mid-night, observers will be tracking Venus as it moves closer to Mars on the nights around the summer Solstice. The below chart from Stellarium shows the view on the evening of 21st June, when the two planets will be joined by a young crescent Moon.



Mars is now approaching the end of its apparition. As mentioned above, most of the interest will be in watching the approaching Venus. Mars itself is at magnitude 1.7.

Jupiter is now emerging back into the early morning sky. Rising at 2h 40m on 15th June, it lies roughly 15 degrees above the eastern horizon by 4.30am. A waxing crescent Moon passes within 1.5 degrees of Jupiter on the morning of 14th June.

Saturn lies amongst the stars of Aquarius and is an attractive target if you're out and about in the pre-dawn hours. Rising at just after 1am mid-June at magnitude 0.9, the planet lies low down towards the south-east a couple of hours later. The ring system angle is now noticeably narrower than it was last year as we move closer toward the next ring plane crossing in a couple of years time.

Uranus is slowly emerging back into the pre-dawn sky. Lying further to the East of Jupiter in Aries, Uranus suffers from the bright twilight and will be better placed for observing in a few weeks time.

Neptune can be found amongst the stars of Pisces. Rising at just after 1.30am, this distant world remains low in the south-east until morning twilight becomes too strong for this magnitude 8 planet.

International Space Station currently has no visible forecasts available for much of June. Current predictions are morning passes commencing right at the end of the month.

Bootid Meteor Shower: This minor meteor shower, is active from 22nd June through to 2nd July, reaching a maximum on 27th June. This shower is best observed soon after dusk when the radiant (in Bootes) is at its highest, although you will have to contend with a gibbous Moon. At maximum you can expect to see one or two meteors per hour above the sporadic background rate. July and August, of course, will bring much more in the way of active meteor showers to view!