Athenaeum Astronomy Association

THE NIGHT SKY IN SEPTEMBER 2021

The Sun
We are now reaching one of the cardinal points of the year, the Autumn Equinox.
On September 22nd night and day will be the same length all over the Earth. The Sun, in its journey south has reached the equator. People viewing from the equator will see the Sun passing directly overhead at their local noon.

At this time of the year, the rate of change of daylight is at its greatest.
At the beginning of the month the Sun will rise around 6.15 BST and will set around 19.50 BST giving a day length of 13 hours 35 mins. At the end of the month the Sun will rise around 7.00 BST and will set around 18.40 BST giving a day length of around 11hours 40 mins.

During September, the days will shorten by nearly two hours. This sends a powerful signal to the animal kingdom to prepare for winter. Unfortunately, the human being has created so much light pollution that natural signals like this are being drowned out.

The Moon
The Moon will be new on September 7th, will reach first quarter on the 13th, will be full on the 20th and will reach last quarter on the 29th.

The Planets
Mercury and Mars are both too close to the Sun to view this month.

Venus is an evening object and will be shining at magnitude -4.1. Unfortunately, it remains at a very low altitude close to the southwest horizon between Virgo and Libra.

Jupiter is well placed for observation shining at magnitude -2.8 among the stars of Capricorn. It is moving in retrograde motion at the moment, that is from east to west. Earth, being closer to the Sun, is moving faster than Jupiter and is passing the giant planet on the inside track. Jupiter is orbiting the Sun in the same direction as we are, but our speed causes the illusion that Jupiter is going backwards. On the night of 17th and 18th September, the shadow of the Galilean moon Callisto falls on Jupiter's disc. Callisto is the furthest Galilean moon from the planet and so shadow events are less common than those of Io, the nearest moon to the planet. Callisto itself will be to the right of the planet and its

movement of the shadow across the disc will be slower than when Io gives a shadow display.

Saturn is also well placed for observation together with its brightest moon Titan. Like Jupiter, Saturn is also currently situated in the constellation of Capricorn but at the other end of it, shining at magnitude -0.3. Normally Titan is the only moon of Saturn visible in a small telescope but this month the moon Iapetus is visible to telescopes capable of showing objects of 10th magnitude, assuming a reasonably clear atmosphere. Iapetus is a curious moon famous for having one hemisphere dark and the other bright. On 21st September the bright hemisphere is facing Earth and will be shining at magnitude +10.2. If you want to observe it, I suggest that you use a planetarium programme such as Stellarium to plot the position of the moon relative to Saturn to make it easier to find on the night.

Uranus is visible shining at magnitude +5.7 in the constellation of Aries

Neptune is at opposition on the 14th of September and is near the boundary between Pisces and Aquarius. It will be shining at magnitude +7.7.
The area of sky near Neptune includes the well-known ring of stars in southern Pisces. The asteroid Pallas is nearby and comes to opposition on the night of 10th and 11th September. It will be shining at magnitude +8.5. Pallas will be tracking south westwards below the Pisces ring of stars. It will remain in the area for the rest of the month. Your planetarium program will help you find its precise position for the nights you want to observe.

Mira the Wonderful
Mira is a variable star that has given its name to a class of variable stars, the long period variables. The characteristics of the Mira class stars are that they are red giants whose outer layers pulsate causing a change in brightness. The changes take place over a year or so, hence the name “long period”. They are predictable in that their variability could be described in terms of their usual behaviour, but they are not precisely predictable as is the case with eclipsing variables.
Mira itself varies in magnitude from about +1.7 to about +10 over a period of about 11months. Most of the time it is below naked eye visibility but at maximum it is visible without optical aid.
Mira is predicted to come within naked eye visibility during September and will remain so for a month or two. At the moment it rises in the early hours but will

be rising earlier as the month progresses. It is predicted to remain in naked eye visibility for some weeks.
Mira is to be found in the constellation of Cetus at Right Ascension 2 hours 19 mins 20 secs, Declination -2º 52 mins 42 secs.

That's all for this month until next month wishing you clear skies.