
Welcome to AAA's first podcast for 2021.

I hope you were able to take advantage of the cloud gaps to see the great conjunction between Jupiter and Saturn. It was made more difficult because the window of opportunity between sunset and the planets being too low in the sky for effective observation was very short. The planets were at their closest on December 21st but unfortunately, from my observing site, clouds ruled out any chance of a view. However, on the three preceding evenings the view was perfect even to show the two planets together in the same field of view in a 90millimetre refractor operating at 100 times. A really memorable sight.

As you all know December 21st was also the shortest day. The days will now gradually lengthen until the spring equinox when the daylength will be the same the world over. The rate of change of daylight is slow at the moment, you won't notice much change, but the rate will gradually speed up until the equinox when the weekly daylight change will be much more obvious. It is this rate of change of daylight that stimulates hibernating animals to wake up.

The Moon

The Moon will be at last quarter on 6th January. It will be new on the 13th and will have reached first quarter on the 20th. Full Moon will be on January 28th.

The highlight of this month's lunar activities occurs on the night of January 25th and 26th when the Moon passes in front of the open star cluster M35. M35 lies within the constellation of Gemini.

The Moon will begin to cover the outlying stars in the cluster around 10 pm and maximum cover will occur around midnight. The Moon will have cleared the cluster by 2 am. Unfortunately the Moon will be near full so its light will drown out the starlight at the point when each star disappears.

Nevertheless, the event will be quite spectacular when viewed through binoculars, particularly if they are mounted on a tripod to eliminate muscular fatigue.

Another lunar spectacle will occur around January 15th when the Moon is a very thin crescent. This will be the best time to see Earthshine. If you were on the Moon looking back at Earth, you would see that the Earth was nearly full. As the Earth is bigger than the Moon a full Earth would be much brighter than a full Moon. The amount of light reflected from the Earth is enough to light up the Moon so that, despite not being in direct sunlight, lunar surface features are visible to us. Using a small telescope, it will be interesting to see how many features you can identify using earthshine.

The Planets

Mercury puts on an evening show this month. It reaches greatest eastern elongation on 24th January when it will be 18.6° to the left of the Sun. At about 5pm it will be at an altitude of about 9° and at an azimuth of about 233° . It will have a magnitude of minus 0.5. Use a pair of binoculars to look for it around the 24th January, but make certain that the Sun has set before using any kind of optical instrument around the setting Sun.

Venus will still be visible during the first week of January in the dawn sky. After this it will be too close to the Sun to observe.

Mars is visible in the constellation of Aries. It is now past its best as it moves further and further from us. During the month it will shrink to show a disc of about 8 arc seconds and will dim to a magnitude of plus 0.4.

Jupiter and Saturn remain close together. Saturn is in conjunction with the Sun on January 24th and Jupiter follows on January 29th.

Uranus is to be found among the stars of Aries close to Mars. It shines at magnitude +5.7. A small telescope will show its blue green disc and help to show that it is a planet and not a background star.

Neptune is to be found among the stars of Aquarius but is becoming lost in the glow of sunset.

Comets and Meteors

Comet Atlas is in our skies and is predicted to shine at a magnitude of +9 to 10. It will not be spectacular like last year's Comet Neowise but it is worth mentioning as it may prove relatively easy to find. It is due to pass close to Capella, the lead star in the constellation Auriga. Between the 1st and 5th of January it will pass to the right of Capella at a distance of between half and one degree. It will be high in the sky which means that the light from the comet will have a relatively small amount of atmosphere to pass through, making it

easier to see. The predicted magnitudes however suggest that you will need an instrument more powerful than an ordinary pair of binoculars to see it.

The annual meteor shower, the Quadrantids peaks on the night of 2nd and 3rd of January. Meteor spotting seems to be more popular of late as more details are being published in magazines. The Quadrantids are described, at maximum, as having an 80+ Zenith Hourly Rate. This is an estimate of the number of meteors that a single observer might expect to see under ideal conditions at the peak of the shower. Ideal conditions require a dark site, the radiant to be overhead (i.e. at the Zenith) and to be uncontaminated by moonlight. This year the radiant will be quite high in the sky, but the shower will be contaminated by a waning gibbous Moon. Also, the shower has a narrow peak. Most meteors are expected to arrive within a six-hour window, during the latter half of the night.

Meteor showers are usually named after the constellation that contains the radiant. The Quadrantids are named after the obsolete constellation Quadrans Muralis which now lies in the constellation Bootes. As a rough guide, the radiant lies a little to the left of the end of the handle of the Plough.

If you are going to meteor watch wrap up warm and remember that meteors can appear in any part of the sky and can be tracked back to the radiant. It is therefore not appropriate to watch the radiant. Use your knowledge of the location of the radiant to determine whether or not the meteor you have just seen belongs to the Quadrantids.

That is all for this month. Happy New Year

