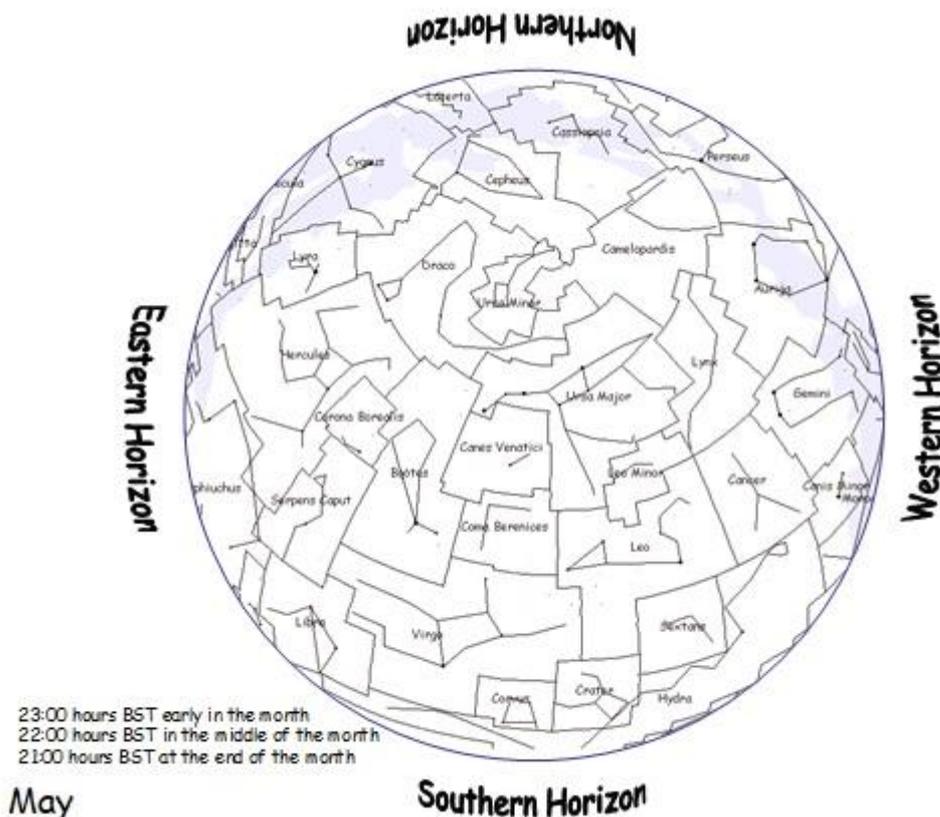




The Night Sky (May 2018)

BST (Universal Time plus one hour) is used this month.



The General Weather Pattern

May often contains some of the driest and clearest nights of the year; however, squally storms are much more frequent than in April. A warm spell can occur towards the end of the month, but clear nights can still be frosty. Seasonal noctilucent clouds, high in the Earth's atmosphere, begin to display themselves in the last week or so of the month. Be prepared to wrap up warm and wear multiple layers of clothes, with a hat and sturdy shoes.

From Earth

As the Earth moves towards the summer solstice in June, night-time is short. Astronomical twilight encroaches on the amount of time available to observers, particularly to astro-photographers.

In mid-May at 22:30 the North Galactic Pole can be found due south in the constellation of Coma Berenices. At this time of year, it's nice and high, around 65° , at a convenient time of night. Its official position, as defined by the International Astronomical Union in 1959, is RA 12h 49m, Declination $27^\circ 24'$. This varies very slightly for different applications.

Sun

Nautical twilight exists when the Sun is between the horizon and 12° below the horizon. Astronomical twilight ends or begins when the centre of the Sun reaches 18° below the horizon. In the last ten days of May, all through June and until the last ten days in July, the Sun doesn't reach that far and officially, astronomical twilight lasts all night at the latitude of Usk.

As a consequence, during the summer months at higher latitudes, the midnight sun inhibits observations of aurorae; the night skies need to be dark and clear. Even as far south as Wales, observations are restricted.

It is always worth reminding members that sunlight contains radiation across the spectrum that is harmful to our eyes and that the projection method should be used, or use the society's solar telescope. Ask experienced members for help.

Moon

Last Quarter is on 8th at about 02:10 in the constellation of Capricornus.

New Moon is on 15th at about 11:50 in the constellation of Taurus.

First Quarter is on 22nd at about 03:50 in the constellation of Leo.

Full Moon is on 29th at about 14:20 in the constellation of Ophiuchus.

The Moon is at apogee (most distant from Earth) on the 6th, and this year's nearest perigee (nearest Earth) is on the 17th.

This is a good time of year to observe a first quarter Moon. The Moon is still high in the south-western sky at night-fall and with the weather becoming milder, even with hand-held binoculars there are rich pickings of selenological features to study at the terminator.

The Planets



Mercury is unfavourable this month; ascending only about 30 minutes before the Sun in the glare of the morning sunrise on the 1st, and rising just 20 minutes prior to the Sun at the end.



Venus reveals herself just north of west at sunset throughout the month of May; as a consequence of her proceeding east against the progress of the stars moving west. The planet appears to move from the constellation of Taurus into Gemini on the evening of the 19th. Two days before that on the 17th a thin waxing crescent Moon appears with Venus for a lovely photo-opportunity.



Mars emerges in the south-east throughout the month, rising at 2:30 at the start and 100 minutes earlier at the end as it progresses towards opposition in late July. As the Earth closes on Mars, the planet appears to become bigger (15.3") and brighter (-1.1 magnitude), and can be found moving from Sagittarius into Capricornus on the night of 14/15th. A waning gibbous Moon finds itself between Mars and Saturn on the morning of the 5th, otherwise Mars is best observed late in the month.



Jupiter becomes more convenient to observe as it moves from opposition on the 9th May. It can be found in the constellation of Libra throughout the night during this month, moving retrograde. Even though it rises no more than 23° above the horizon, there is much to see in a decent telescope, the Galilean Moons with their accompanying phenomenon are often to be observed passing across the face of the planet from east to west. There are transits and shadow transits to behold, and if you have good seeing you may well make out the North and the South Equatorial Belts and the Great Red Spot is visible at times, of course.



Unfortunately for us in Wales, **Saturn** is poorly placed in its orbit so that even at its best it is low in the night sky during summer. Saturn rises, also in retrograde motion, around 01:30 in the beginning of May and culminates about 16° above the southern horizon around 05:15. Devoted observers will be pleased with the open ring system, but for less eager and relaxed observers, Saturn becomes more convenient over the next few months as it moves towards opposition on 27th June. By the end of May Saturn will rise at about 23:15.



Early in the month, **Uranus** rises about 15 minutes before the Sun in the morning twilight, and at a magnitude of 5.90, is far too dim and dangerous to observe under these conditions. By the end of May, even though it rises around 2 hours before the Sun, it is still very unfavourable.



Neptune, at a magnitude of 7.9, it is far too dim to observe even with a telescope in the morning glow, and is unfavourable throughout May.

Dwarf Planets

Pluto, in Sagittarius, gets no brighter than 14.8 even at opposition in July.

Ceres, at a visible magnitude of about 8.3, can still be found in the constellation of Cancer until 14th April when it enters Leo. A decent telescope is needed, but at this date, after 23:00 (BST) it will present itself in the west.

Haumea can be found a little to the south-west of Arcturus in Boötes this month.

Makemake is in Coma Berenices approximately 5° south-west from β Com; the constellation's brightest star.

Galaxies

As mentioned earlier, the north galactic pole of our Galaxy is found in the constellation of Coma Berenices and there is a corresponding south galactic pole in the southern constellation of Sculptor, and when we look out through these Galactic Polar Regions, the view into inter-galactic space is much clearer than along the plane of the Galaxy, the Milky Way.

The 'Season for Galaxies' runs from February through to early July, when, amongst the constellations of Coma Berenices, Virgo and behind Leo there is much to see in the northern hemisphere. This month, the most convenient time of night for observing 'the Realm of Galaxies', on the meridian, is in early May.

Meteors

The Eta Aquarids are best seen between 1st and 8th May. ZHR is near 45 at around about the 5th. The radiant is in Aquarius. Associated with Comet P/Halley, the shower has been observed since about 74BCE. This shower varies in intensity in a cycle lasting twelve years or so with a ZHR between 35 and 80. It appears to be just past its least active. Like Comet P/Halley, the shower travels in a retrograde direction and so these meteoroids hit the Earth's atmosphere at around 67 km/s and very fast meteors can be seen. The trails of some of these meteors persist in the sky for a longer time as a consequence. Unfortunately the shower rises with the morning twilight and

seeing only lasts until the radiant is only about 10° above the horizon. This shower is more noteworthy in more southerly latitudes. However, look out for ‘grazers’, meteors that skim the upper atmosphere. A waning gibbous Moon rises at around 02:00 this year, making for an unfavourable event.

Culmination of Constellations

Culmination, the highest point an astronomical target like a constellation can reach in the sky, occurs on the north-south line, the local meridian, at your observing site. All things being equal, this is the best position in which to observe the constellations. Northern circumpolar constellations, those that circle around the north celestial pole, will cross the meridian above and below the pole, it is the upper culmination that is best.

Constellation	Convenient Culminations	Midnight Culminations	Observability
Corvus	23:00 Early May	Mid-April	Whole
Coma Berenices	23:00 Early May	Late April	Whole - high
Canes Venatici	23:00 Early May in twilight	Late April	Whole - at zenith
Virgo	23:00 Mid-May in twilight	Late April	Whole
Boötes	24:00 Late May in twilight	Late May	Whole - at zenith
Libra	24:00 Late May in twilight	Late May	Whole but poor - low down
Ursa Minor	23:00 Late May in twilight	Late May	Whole - face north upper culmination

Virgo (pronounced ver’ go)

In Welsh

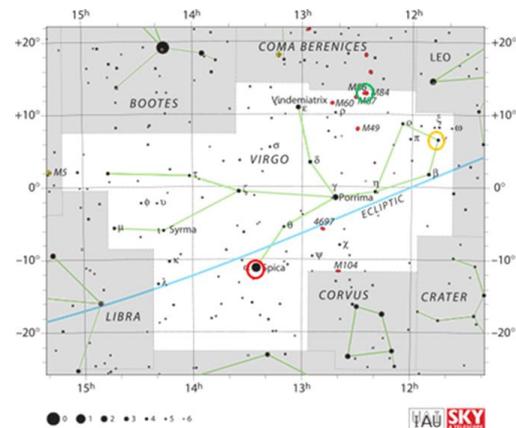
Y Forwyn *nf.* literally ‘the Virgin’.



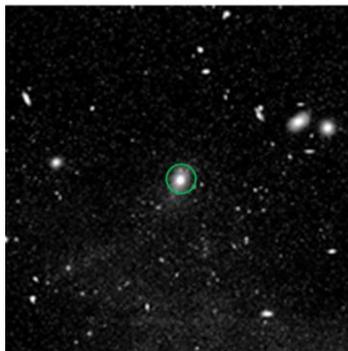
You can find Virgo due south at eleven in the evening in mid-May, a little towards the south-east of Leo. Virgo is not very distinctive so apart from using Leo as a guide, you can also follow a curve (centred on Regulus) from the ‘tail’ of the Great Bear, Ursa Major, through Arcturus in Boötes to Spica (O) in Virgo. ‘Follow the arc to Arcturus and speed to Spica’. In this position Virgo is orientated on her left side. Spica, the brightest star in Virgo, is a first magnitude star and is easy to see on a good clear night about 25° above the southern horizon. It is a glorious B1 type star that shines at apparent magnitude 0.97.

Zavijava, (O) despite its Beta Vir designation, is the fifth brightest star in Virgo, has a magnitude of 3.58. It is a spectral type F8 and lies at about 35 light years from us.

In Arabic its name, *Zawiyat al- Awwa*, means ‘Angle of the barker’; the corner for the dogs.



A notable feature of Virgo is the Virgo Cluster, centred on the northern border of the constellation and extending into the adjoining constellation of Coma Berenices, behind Leo’s tail. The cluster contains about 2,500 galaxies and is receding from us at a speed of 1,150km/sec.



Its most famous member is the elliptical galaxy M87 (O) thought to be near the core of the Virgo Cluster as seen in this image, taken by the Palomar Observatory on Mount Palomar in California. M87 is also known as the radio galaxy Virgo A. With the present-day uncertainty placing the Virgo Cluster around 55 million light years distance, it is the nearest galactic cluster to our own Local Group. Found at RA 12h 31m 41s, Declination 12° 18' 16". At a magnitude of 8.60 it may well be seen with a good telescope.

The supercluster of galaxies to which we belong is centred on the Virgo Cluster. ‘The Realm of the Galaxies’.



Myths

Virgo has appeared as a maiden to many civilisations in a bewildering array of identities.

Egypt

In ancient Egypt Virgo appeared in the zodiacs of Denderah and Thebes. She was often associated with Isis, the great Egyptian goddess who was credited with forming the Milky Way from the magic ears of corn that she carried as she fled from her evil brother Set, a belligerent thunder god.

Chaldea

She was the Chaldean Ishtar or "Queen of the stars" named "Ashtoreh" in the First Book of Kings.

India

In India she was Kauni or "maiden", mother of the great god Krishna.

Central Asia

Further west, across Asia in Turkoman mythology she was Dufhhiya Pakhiza, "the pure virgin".

Greece

In Greek mythology Virgo has occasionally been associated with the neighbouring constellation Bootes through its identity as the Athenian Icarus. His daughter was Erigone, who is thought to be Virgo, who hanged herself in despair after his death and was transported with him to the skies.

However, the most celebrated representation is as Persephone, daughter of Zeus and Demeter (sometimes known as Ceres), goddess of the harvest. Having been kidnapped by Pluto, king of the underworld, Persephone was transported to his kingdom in his chariot (sometimes represented by the stars of nearby Libra) to become Queen of Hades.

Her mother was so distraught that she prevented all seed from sprouting, sending the earth into a permanent winter. However, Zeus was alarmed by the loss of his agricultural tributes (and rather less by the loss of one of his daughters) and ordered Pluto to return her to the mortal world. Pluto though claimed Persephone as his bride on the basis of six pomegranate seeds she had consumed in the underworld whilst his captive. Zeus resolved the situation by decreeing that Persephone should spend part of the year in the underworld, and then return to the mortal world for the rest of the year.

Overjoyed at her daughter's return Demeter joyfully lifted her curse from the plants of the earth and each spring henceforth the plants of the world shoot into life to celebrate Persephone's return, and then die back in the winter as she endures her periodic return to Hades.

