

We are now past the Autumnal Equinox, so the hours of daylight are less than the length of darkness. The days will continue to shorten until we reach the Winter Solstice on December 21st. The shortest day gives astronomers in our latitudes about 16 hours of darkness in which to enjoy their hobby.

This month, October, falls well within the season known as Autumn. Despite this we are still in British Summer Time which does not end until October 25th when we will put our clocks back and have an extra hour in bed.

The Moon will be full on the 1st October and will reach last quarter on the 10th. New Moon is on the 16th and will reach first quarter on the 21st. There will be a second full Moon this month on October 31st.

The Planets

Despite reaching greatest eastern elongation on 1st October, Mercury is not well placed for observation this month.

Venus rises three hours before the Sun and shines brightly at magnitude -4.0.

Jupiter is moving into the glare of sunset but will be visible for a short time at the beginning of the month before it sets in the western sky.

Saturn is following Jupiter along the ecliptic and is getting closer as it approaches its very close conjunction with Jupiter in December. It does not set for nearly an hour after Jupiter.

Uranus is very well placed for observation as it reaches opposition on 31st October. It is to be found among the stars of Aries shining at magnitude +5.7 and is well placed high in the sky.

It is an easy binocular target identifiable by its greenish blue colour. A small telescope will show it to be a disc. A large telescope of 12 inches or more has enough light grasp to show Uranus's two brightest moons, Oberon and Titania.

When making your observations remember that despite being at opposition, Uranus is 1.6 billion miles from us and reflected light from its disc takes 2 hours and 40 minutes to reach us.

Neptune is also well placed for observation and shines at magnitude +7.8 from the constellation Aquarius. Neptune is 2.7 billion miles from us and reflected light from its disc takes 4.2 hours to reach us.

I have left the planet Mars to last as it is about to reach a special opposition which places it in a particularly favourable position for observing.

In the first place, the closer we are to a planet the more detail we can see on its disc. In the second place, the higher in the sky the planet is situated, the less of Earth's atmosphere the light from the planet has to penetrate facilitating a clearer view. This month's opposition maximises these two variables.

Although Mars is not as close as it could be, the disadvantage of this is offset by its being high in the sky.

Weather permitting, this month's telescopic views of Mars should be stunning!

Mars will not be so favourably placed for about 15 years.

At the beginning of the month Mars will show a disc of 22.5 arc seconds and will climb to an altitude of 45°.

Throughout the month surface features will be visible through amateur telescopes. Generally speaking, the greater the aperture the more you will be able to see.

Mars rotates on its axis every 24 hours and 37 minutes therefore if you observe the planet at the same time each night, a feature visible on one night will appear in the same position on the second night 37 minutes later. Because Earth and Mars have such similar rotation periods it would take 40 nights to see the whole of Mars crossing the central meridian line. Of course, in practice, you could view Mars for several hours in a viewing session and would probably be clouded out on more than one of the 40 nights.

I recommend that you use a planetarium programme to plan your observing sessions. A decent programme will show images of the planet as it would appear at whatever date and time you specify so you can preview the features visible.

One of the easiest features is the south polar cap, however, it is now around mid-summer on Mars and the polar cap will be significantly smaller than at cooler times of the Martian year. At this time of year, the south polar cap will be tilted towards Earth so the North Pole will be out of view.

One of the most easily recognisable and easy to see surface feature is Syrtis Major which is a dark finger shape mark pointing north. It is a shield volcano which has very shallow slopes and is, in the order of, six hundred and twenty miles across.

To the south of this feature is a light-coloured area, the Hellas Basin. Hellas is not so obvious as Syrtis Major but is an impact crater some one thousand four hundred and thirty miles across.

If you are new to observing Mars, I suggest you cut your teeth on the aforementioned features then use a planetarium programme to extend your recognition of surface features.

All we need now is a run of clear nights!

Good luck