

November busy month for skywatchers

November will be a very busy month for skywatchers. There will be two meteor showers, conjunctions (groupings) involving Venus and Saturn, Venus and Uranus, and Saturn and Neptune. Venus reaches its maximum elongation and a new recently discovered comet may reach naked-eye visibility!

Mars and Jupiter will be the morning planets this month. Venus and Saturn are evening objects. Mercury is too close to the sun to be seen.

The length of the day decreases by exactly one hour this month. On Nov. 1 the sun rises at 7:05 a.m. and sets at 5:25 p.m. For a possible ten hours and 20 minutes of sunlight. On the 30th these times are 7:41 a.m. and 5:01 p.m. for a possible nine hours and 20 minutes of sun. (All times are Eastern Standard Time.)

Face the southwest about 45 minutes after sunset, on Nov. 1, and you'll see a very nice alignment of objects. Start with the waxing (growing) crescent moon. Below and to the west (right) of the moon is the star Antares (an TAR. ees), the "heart" of Scorpius. It's only a few degrees above the horizon and a challenge to see in the glow of evening twilight.

VERY EASY to see, above and to the south (left) of the moon, is the brilliant planet Venus. Draw a line from the moon through Venus and you'll come to Saturn, the planet with the beautiful ring system. Watch the moon move past both these planets during the next two evenings. Also watch Venus pass Saturn during the next few weeks.

The S. Taurid (TORE id) meteor shower is at its maximum in the pre hours of November 2. Named for the constellation of Taurus, from which the "falling stars" appear to radiate, this meteor shower is not very impressive. A patient observer can expect to see only 15 meteors per hour. Taurus will be high in the south at sunrise.

On the evening of the 2nd, there will be a spectacular sight. The moon will be within one degree of Venus. That planet will appear to sit atop the point of the moon's crescent! On the next night, the moon will be about four degrees below and to the south (left) of Saturn.

Notice the moon's position after sunset on the 4th. It is now past Saturn and the crescent is noticeably larger.

First Quarter Moon is at 9:11 a.m. on Nov. 6. The moon is one-quarter of its way around the earth. If you have a telescope, look at Venus tonight before the sky gets too dark. You may be surprised to see that it looks like the first quarter moon as well.

Venus goes through phases, like our moon, as it orbits the sun. As different portions of Venus are illuminated by the sun, we see different "phases." Because Venus appears so bright, it's best to observe it in partial twilight when there is less contrast between a dark sky and the brilliant planet.

PLUTO IS in conjunction with the sun on the 7th. It is behind the sun, as seen from the earth. Even when it isn't hiding behind the sun, Pluto is



skywatch

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not an object you will see in the sky.

Venus passes Uranus on the evening of the 7th. The planet Uranus is not easily visible without binoculars or a telescope, but having Venus nearby as a guide will make it easier to find Uranus.

Use your binoculars and look three and one-quarter degrees (about seven full moon diameters) to the north (upper right) of Venus. Try not to look directly at Venus; its brightness will blaze your eyes and you'll have difficulty making out Uranus. Uranus will have a faint greenish color.

Venus is at maximum elongation (greatest apparent distance) from the sun on the 8th. Venus is 47 degrees east (left) of the sun and dominates the evening sky.

Mercury is at superior conjunction with the sun on the 10th. Mercury is behind the sun, and is not visible. Don't worry about a collision occurring between Mercury and Pluto, which is also "behind" the sun. Those two planets are billions of miles apart, orbiting at different distances from the sun.

Saturn will pass one-half of a degree (one moon diameter) south of Neptune on the evening of Nov. 11. Use a telescope and look to the north

(right) of Saturn. This is the third and final conjunction of a triple conjunction that began in March this year. These two planets will not have another conjunction until 2026!

FULL MOON is at 12:51 a.m. on Nov. 13. The moon is fully lit by the sun. It will have risen at sunset, be visible all night, and will set at sunrise.

Look for the moon, in the east northeast, on the evening of the 13th. Above the moon and to the right is the Pleiades (PLEE a dees) star cluster. The Pleiades marks the shoulder of Taurus the bull and is a

beautiful sight in binoculars. Venus passes four degrees south of Saturn on the evening of the 15th. This is the first pass of a triple conjunction that will conclude next year. The moon is two degrees to the west (right) of Jupiter before dawn on the 16th. Jupiter is the 4th brightest object in the sky. Only the sun, the moon and Venus are brighter.

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