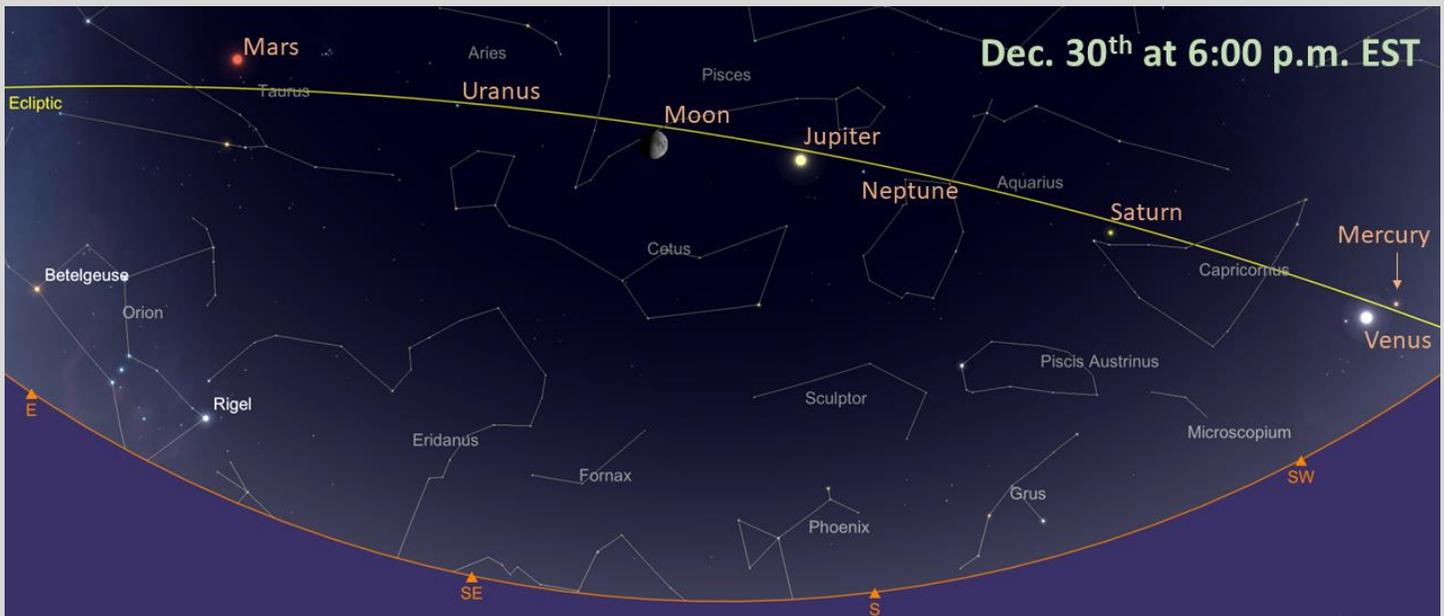


All the Planets Align Simultaneously at Dusk!

- on the nights of December 29-31

- a December 2022 Sky Event from the [Astronomy Club of Asheville](#)



Although the planets Uranus and Neptune are shown on the chart, optical aid is needed to observe them. Illustration created using SkySafari and PowerPoint software.

The last few days of 2022 bring together at dusk an alignment of all the solar system planets with Earth’s Moon along the “ecliptic” (the approximate path that the Sun, Moon, and planets follow across our skies).

Such a configuration doesn’t happen very often. Certainly, that seems impressive, so what’s the catch? The problem (as usual) is Mercury. The innermost planet reached its greatest elongation east of the Sun on December 21st, but it is not especially bright (magnitude 0.9), and not very high off the W-SW horizon at dusk – with an altitude of only 7° during evening twilight. To observe Mercury in this solar-system lineup, you’re going to need an unobstructed western horizon and binoculars.

Mercury’s close companion, Venus, is also low to the W-SW horizon at an altitude of only 6°, but in late December it shines brilliantly at magnitude -3.9 (some 83 times brighter than Mercury), and it should be visible to a keen observer. Venus can serve as a guidepost for locating much fainter Mercury.

The waxing Moon and the remaining planets are all high in the sky. You will need a go-to telescope or a chart, along with optical aid, to locate the planets Uranus and Neptune. Take the challenge and spot the 5 naked-eye planets and the Moon simultaneously, and, if you have a telescope or binoculars, complete the planetary sightings by adding in Uranus and Neptune.

Venus, the most reflective of all the planets, will be the brightest of the five naked-eye planets, followed by Jupiter, Mars, Saturn, and Mercury. It is difficult to discern a 3rd dimension while observing the sky from our 2-dimensional viewpoint, especially when some planets shine brighter than others. But try it, using the approximate distance values for the 5 planets -- that are shown below for the dates around December 30th. Our Moon is only 235 thousand miles away on December 30th.

Planet	Distance in millions of miles
Mercury	72
Venus	150
Mars	59
Jupiter	464
Saturn	979

By comparison, the Sun is 93 million miles away from Earth – a distance astronomers call an “astronomical unit” or AU. Direct sunlight takes about 8 minutes and 20 seconds to reach your eyes! In late December the reflected sunlight from Mercury reaches your eyes in about 6½ minutes, while the reflected sunlight from Saturn left it some 87 minutes ago! Ponder that light travels at the phenomenal speed of 186,000 miles per second! ***