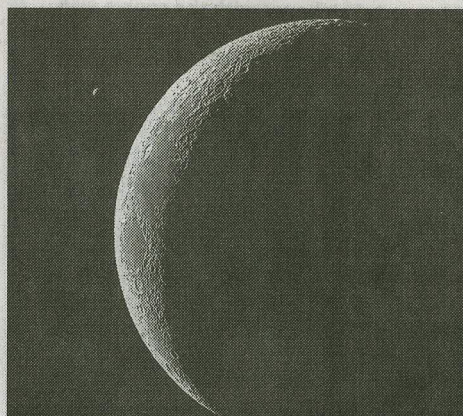


# Venus on course for a game of hide and seek with the moon in December

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This is about how Venus and the moon will appear at 11 a.m. on Dec. 7 as seen through a small telescope. The moon will approach Venus and cover it from view during a special "eclipse" astronomers call an occultation.

Submitted

December traditionally brings cold and snow, but there are some interesting, even spectacular, sky events you should bundle up and go outside to see if it's clear.

Early mornings in December are the time to get a glimpse of Venus, Mars and Jupiter, which will be in a row looking southeast at about 5 a.m., with Venus being the lowest in the row.

Mars rises at about 3 a.m. in early December, and binoculars or a small telescope will reveal Mars' ruddy orange color. Later in the month, to the lower left of Venus, Saturn will make an appearance in the early morning sky.

Mighty Jupiter can be seen in the eastern sky in Leo around midnight in early in December and will be visible all month. Throughout December, Jupiter will "grow" by nearly 10 percent as Earth's orbit brings the two planets closer together.

You'll need a telescope to make out the two darker belts on either side of the planet's equator. The four bright moons — Io, Europa, Ganymede and Callisto — should be visible.

A real treat will occur at about 4:30 a.m. on Dec. 8 when Callisto will cast a shadow on Jupiter because of the angle of

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the sun.

Mercury will be visible around mid-month in the southwest, low to the horizon in the evening sky about 30 minutes after sunset. It will be easier to see as the month progresses and it climbs away from the horizon.

Dec. 4 through 17 will bring the annual Geminid meteor showers with the peak on Dec. 14 when up to 120 meteors per hour might be visible. It may provide one of the best meteor showers of the year, made even better because it occurs under a moon-free sky which will provide more darkness to see them.

According to the International Meteor Organization, about 10 p.m. on Dec. 13 and 14 will be great times to watch. The Geminid radiant point is near Castor in the Constellation Gemini which is high in the sky and somewhat east.

For my money, one of the best celestial events of the year occurs in broad daylight on Dec. 7 — the occultation of Venus by the moon. An occultation is a special kind of eclipse where the moon passes in front of a star or planet in our solar system.

Here in the Quad-Cities, the occultation of Venus

will occur at about 11:13 a.m. when the edge of the moon will start to encroach on Venus.

I would encourage people to go out at 10:30 a.m. and find the moon, which will be a narrow crescent high in the south/southwest. Look just to the left of the moon and you should be able to see Venus as well.

Venus is visible in broad daylight if you know exactly where to look. This is an opportunity to see it by using the moon as a guide. If you have a telescope or binoculars, use them to help see this relatively rare pairing of the two brightest objects in our sky (other than the sun of course).

## A word of warning

Do not look at the sun through a telescope or binoculars as this can lead to immediate eye damage.

But do take this opportunity to watch the moon move past Venus in real time. It will take about 60 seconds for the moon to completely cover Venus, which will remain hidden from view until about 12:30 p.m. when the moon slides by.

Information gathered from Sky & Telescope and Astronomy magazines, December 2015 and Stellarium.