

# The Night Sky

## Saturn Leaves the Evening Sky

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With Venus and Jupiter leaving the evening sky over the last two months, we now find the ringed planet Saturn sinking down into evening afterglow of the sun by the last part of December. Observers should be able to spot Saturn very low above the southwestern horizon one-half hour after sunset during the first week of the month. However after that, Saturn will be too difficult to see in the bright twilight. On the evening of December 8<sup>th</sup>, sharp eyed observers may be able to spot a thin crescent moon to the lower right of Saturn. The following night the waxing crescent moon will be to the upper left of Saturn.

Once Saturn disappears from the evening sky, only Mars remains in the evening sky shining in the southwest sky. The red planet continues to fade in brightness, though it will still be the brightest object in that part of the sky. On the night of December 14<sup>th</sup>, a first quarter moon will appear just below Mars. A week prior to that on the evenings of December 6<sup>th</sup> and 7<sup>th</sup>, Mars will have an ultra-close conjunction with Neptune. The two will be closest together at 10 a.m. EST on December 7<sup>th</sup>, though they will be on the other side of the earth during closest approach. One will need a telescope to spot bluish Neptune.

Venus now shines brightly in the early morning sky. Venus rises a little over 3 hours before the sun at the beginning of the month shining at its greatest brilliancy. As the month progresses, Venus fades a bit, but it still be the brightest object in the early morning sky throughout the month. By mid-month, Mercury rises about one and a half hours before the sun. It will remain visible throughout December shining brightly in the early morning sky below Venus.

The king of the planets, Jupiter, returns to the early morning sky in December. It rises after Mercury about one hour before the sun at mid-month along the southeastern horizon. On the morning of December 21<sup>st</sup>, Jupiter has a close conjunction with the solar system's innermost planet Mercury. On that morning, these two will be separated by less than a degree in arc with Jupiter appearing much brighter than Mercury. You will need a clear southeastern sky to catch this conjunction between the solar system's largest and smallest planets.

The sun reaches the winter solstice at 5:23 p.m. EST on December 21<sup>st</sup> ushering in the season of winter. The moon will be at full phase at 12:49 p.m. EST on December 22<sup>nd</sup>. Full moons that occur in December are known as the "Full Cold Moon" by Native Americans for obvious reasons.

The monthly astronomy open house at the ETSU Powell Observatory are on hiatus over the holiday season. They will return on February 9<sup>th</sup>, 2019. Further information about these open houses and directions to the observatory can be found on the web at <https://www.etsu.edu/cas/physics/observatory/default.php>.

For those of you who would rather explore the night sky indoors, a planetarium show will be given on December 6<sup>th</sup> at 7:00 p.m. at the ETSU Planetarium in Hutcheson Hall. A location map of the Planetarium on the ETSU campus can be found on the web at <https://www.etsu.edu/cas/physics/outreach/planetarium.php>.

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This month's Night Sky was written by Dr. Donald G. Luttermoser, Chair of the Department of Physics and Astronomy at ETSU. He can be reached at [lutter@etsu.edu](mailto:lutter@etsu.edu). Any students wishing to pursue a career in Physics or Astronomy are encouraged to contact him at this email address. Astronomy-related information for the public, including a link to the ETSU Powell Observatory, can be found at <http://www.etsu.edu/cas/physics/> by selecting the Public Outreach pull down menu at the top of this web page.