

# Celestial

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# Observer

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*CCAS member Lee Coombs took this image of the conjunction of Jupiter and Saturn on December 21<sup>st</sup>, 2020. During the "Great Conjunction," the planets appeared just one-tenth of a degree apart in the sky. A conjunction of these planets happens about every 20 years, however, the 2020 conjunction brought Jupiter and Saturn closer than they had been in nearly 400 years. To take this image, Lee used an 8 inch Schmidt-Cassegrain Telescope, with a 2x Tele Extender.*

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## **Next Star Gazing: ONLINE!** Saturday, January 16<sup>th</sup> at 7pm

CCAS Astronomer Kent Wallace and President Aurora Lipper will be taking you on a virtual tour of the night sky so you can stargaze right from home!

Connect here:  
[CentralCoastAstronomy.org/stargaze](https://CentralCoastAstronomy.org/stargaze)

## **Mercury makes an appearance!** Mid-January

Immediately after sunset, look in the southwestern sky for a rare glimpse of Mercury. The closest planet to the sun, it only makes an appearance low on the horizon in the evening sky for brief stints each year.

# Next Stargazing: **ONLINE!** Invite friends!!

## Saturday, January 16<sup>th</sup> at 7pm

Enjoy learning what's viewable in the clear winter skies, from the comfort of your own home! On January 16<sup>th</sup>, CCAS Astronomer Kent Wallace and President Aurora Lipper will take you on a virtual tour of the night sky. You'll be able to interact, ask questions, and gain insight on the best objects to search for this time of year. Then, using the tools you've learned, you'll be able to step outside of your front door, and stargaze. You can download your handout to follow along, and sky map free on our website at the below link.



Feel free to invite all your friends - we can accommodate thousands of people for our free online stargazing session. All you need is an internet connection. You can use any tablet, personal computer, or YouTube enabled TV. We'll focus on objects visible with binoculars or a small telescope. When we're done, you can go outside and look up, and you'll be able to not only find objects, but also understand what you're looking at. Check our website for all of the details:

[CentralCoastAstronomy.org/stargaze](https://CentralCoastAstronomy.org/stargaze)

# Check Your Sky's Quality with Orion!

By: David Prosper



*The Dark Sky Wheel, showing the constellation Orion at six different limiting magnitudes (right), and a photo of Orion (left). What is the limiting magnitude of the photo? For most observing locations, the Orion side works best on evenings from January-March, and the Scorpius side from June-August.*

Have you ever wondered how many stars you can see at night? From a perfect dark sky location, free from any light pollution, a person with excellent vision may observe a few thousand stars in the sky at one time! Sadly, most people don't enjoy pristine dark skies – and knowing your sky's brightness will help you navigate the night sky.

The brightness of planets and stars is measured in terms of **apparent magnitude**, or how bright they appear from Earth. Most visible stars range in brightness from 1<sup>st</sup> to 6<sup>th</sup> magnitude, with the lower number being brighter. A star at magnitude 1 appears 100 times brighter than a star at magnitude 6. A few stars and planets

shine even brighter than first magnitude, like brilliant Sirius at -1.46 magnitude, or Venus, which can shine brighter than -4 magnitude! Very bright planets and stars can still be seen from bright cities with lots of light pollution. Given perfect skies, an observer may be able to see stars as dim as 6.5 magnitude, but such fantastic conditions are very rare; in much of the world, human-made light pollution drastically limits what people can see at night.

Your sky's **limiting magnitude** is, simply enough, the measure of the dimmest stars you can see when looking straight up. So, if the dimmest star you can see from your backyard is magnitude 5, then your limiting magnitude is 5.

Easy, right? But why would you want to know your limiting magnitude? It can help you plan your observing! For example, if you have a bright sky and your limiting magnitude is at 3, watching a meteor shower or looking for dimmer stars and objects may be a wasted effort. But if your sky is dark and the limit is 5, you should be able to see meteors and the Milky Way. Knowing this figure can help you measure light pollution in your area and determine if it's getting better or worse over time. And regardless of location, be it backyard, balcony, or dark sky park, light pollution is a concern to all stargazers!

How do you figure out the limiting magnitude in your area? While you can use smartphone apps or dedicated devices like a Sky Quality Meter, you can also use your own eyes and charts of bright constellations! The Night Sky Network offers a free printable Dark Sky Wheel, featuring the stars of Orion on one side and Scorpius on the other, here: [bit.ly/darkskywheel](http://bit.ly/darkskywheel). Each wheel contains six "wedges" showing the stars of the constellation, limited from 1-6

magnitude. Find the wedge containing the faintest stars you can see from your area; you now know your limiting magnitude! For maximum accuracy, use the wheel when the constellation is high in the sky well after sunset. Compare the difference when the Moon is at full phase, versus new. Before you start, let your eyes adjust for twenty minutes to ensure your night vision is at its best. A red light can help preserve your night vision while comparing stars in the printout.

Did you have fun? Contribute to science with monthly observing programs from Globe at Night's website ([globeatnight.org](http://globeatnight.org)), and check out the latest NASA's science on the stars you can - and can't - see, at [nasa.gov](http://nasa.gov).



**This article is distributed by  
NASA Night Sky Network**

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](http://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

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## CCAS Information

*Founded in 1979, the Central Coast Astronomical Society (CCAS) is an association of people who share a common interest in astronomy and related sciences.*

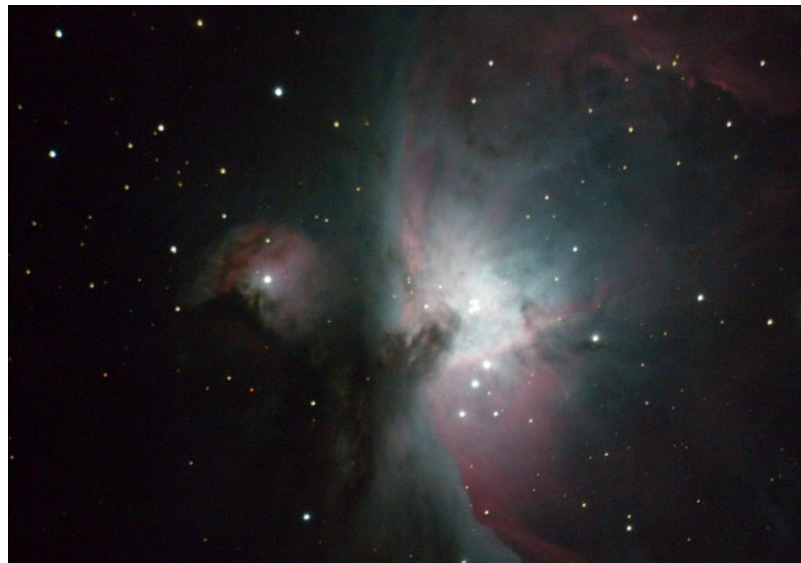
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*CCAS Member David Majors took this image of the Orion Nebula (M42). Located at a distance of about 1,344 light-years from Earth in the “sword” of the Orion constellation, it is easily visible this time of year through binoculars, or even naked eye on a dark night.*