

STAR TRAK for December

December 3 2010



Moon. Photo courtesy of NASA

The moon will pass through Earth's shadow on the night of Dec. 20-21, producing the first total lunar eclipse in nearly three years. Weather permitting, people across North America and the Pacific Ocean will be able to see totality.

Moon

The moon will enter Earth's shadow at 1:33 a.m. EST on Dec. 21 (10:33 p.m. PST on Dec. 20). During the next hour or so, darkness will gradually engulf the moon's brilliance until the total phase of the eclipse

begins at 2:41 a.m. EST. The sky will grow darker as the moon dims, and the moon's color may change to orange-red during totality, depending on how dusty and cloudy Earth's atmosphere is. The total phase will end at 3:53 a.m. EST, and it will take another hour or so for the moon to emerge completely from Earth's shadow.

If you miss this eclipse, your next chance to see totality will be in December 2011 in western North America. Observers in Africa, Asia and Europe will get an earlier opportunity in June 2011.

Meteor showers

The annual [Geminid meteor shower](#), which will reach its maximum on the night of Dec. 13-14, usually offers the best show of the year, outperforming even the Perseid shower of August.

This year, the [Geminids](#) will peak when the moon is at first quarter. After the moon sets around midnight, in a clear sky observers may see more than 100 [meteors](#) per hour. Some meteors will appear as soon as the sky is completely dark, and the numbers will increase as the evening advances. The nights before and after the peak should also provide good viewing opportunities.

These "shooting stars" will seem to come from a point called the radiant near the bright stars Castor and Pollux in the [constellation Gemini](#) the Twins, which gives the shower its name. The radiant will be well above the eastern horizon a few hours after sundown and will remain high in the sky for the rest of the night. The higher the radiant is above the horizon, the more meteors there will be. Try facing southeast if you have a clear view in that direction, though meteors will be visible in all parts of the sky. For details about the Geminid shower, see www.amsmeteors.org/showers.html#geminids .

The Ursid meteor shower will peak before dawn on Dec. 22. The Ursid radiant is near the bright star Polaris, the north star, which is above the northern horizon and visible all night. The usual rate is about 10 meteors per hour. The Ursid shower will be active from Dec. 17 to Dec. 26.

Planets

Venus will be at its dazzling brightest as December begins, rising more than three hours before the sun. By midmonth it will be more than 30 degrees above the southeastern horizon at sunrise, and it may even be visible after sunrise with the unaided eye.

Jupiter will offer its best view in a telescope as evening twilight ends, when it will be highest in the south. It will fade somewhat during December, but it will still be a superb sight.

Much fainter Uranus will be about 3 degrees east of Jupiter at the beginning of the month, and the two planets will draw even closer as the month passes. They will both appear in the same field of view in binoculars.

Saturn will rise about two hours after midnight local time, but the best time to observe it will be the start of morning twilight, when it will be highest in the south. Saturn's rings are now opening, and by month's end they will be tilted 10 degrees from edgewise for the first time in almost three years.

Mercury will be visible a few degrees above the southwestern horizon a half hour after sunset during the first week of December. After that it will fade and drop rapidly into the solar glare, reappearing at month's end above the southeastern horizon a half hour before sunrise.

Mars will be even closer to the southwestern horizon after sunset than

Mercury, too low to be seen without optical aid.

Solstice

The sun will be farthest south in Earth's sky on Dec. 21 at 6:38 p.m. EST (18:38 Universal Time), marking the beginning of winter in the Northern Hemisphere and summer in the Southern Hemisphere. For the next six months in the Northern Hemisphere the days will be getting longer.

Moon phases

The [moon](#) will be new on Dec. 5, at first quarter on Dec. 13, full on Dec. 21 and at third quarter on Dec. 27.

Provided by Indiana University

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