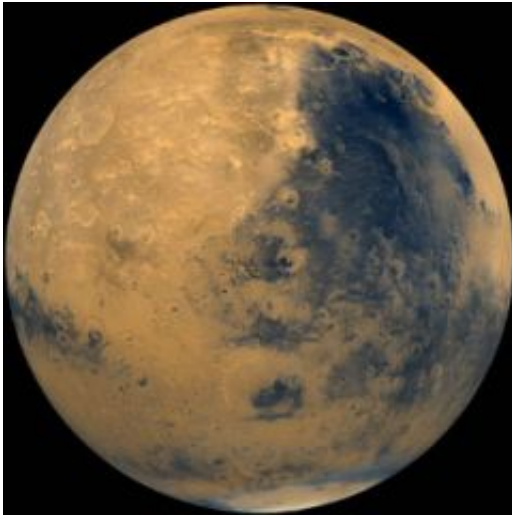


# Mars makes a special appearance

November 1 2007

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Mars. Credit: NASA

All five of the planets visible with the unaided eye will be on display during November nights, but the special attraction will be Mars. The red planet is approaching Earth in its orbit, and it won't appear as large again for another nine years.

Mars is small to begin with, about half the diameter of Earth, and most of the time it is on the other side of its orbit from us. That tends to make it a plain orange blob, even in telescopes, without the details that make the larger planets so interesting.

This time around, Mars will be high overhead for observers at mid-northern latitudes, unlike the previous few close approaches. Riding

above the thick lower layers of our atmosphere in the constellation Gemini the Twins, it will be an arresting sight in a clear, dark sky. The bright orange object will catch the eye as soon as it rises in the east-southeast, around 8:30 p.m. local time as the month begins and two hours earlier by month's end. It will double in brightness during November.

The surface detail that can be seen with telescopes will depend on what is in Mars' atmosphere as well as our own. Major dust storms on Mars in July and August may have left debris still swirling about that will take time to settle. Observers can only wait and watch to find out.

Some images of Mars can be viewed at the Web site of the International Mars Watch at [elvis.rowan.edu/marswatch/images.php](http://elvis.rowan.edu/marswatch/images.php) as well as at [www.lpl.arizona.edu/~rhill/alpo/mars.html](http://www.lpl.arizona.edu/~rhill/alpo/mars.html) . Both sites include information on observing and imaging Mars.

Jupiter will be bright as always, but it will be very low in the southwest at dusk, getting lower each week. Our turbulent atmosphere will obscure much of its detail, but its four bright moons will still be easily visible. By month's end, Jupiter will set about an hour after the sun.

Saturn will follow the bright star Regulus up into the eastern sky around midnight. Seen through a telescope, Saturn's famous rings are now tilted closer to edgewise than they have been in a decade.

The dazzling "morning star" in the east will be Venus, rising more than an hour after Saturn and nearly four hours before the sun. As the month passes, Saturn will move higher while Venus remains near the sun in the constellation Virgo, easily outshining all of the stars there.

Mercury will make its best pre-dawn appearance of the year for observers in the Northern Hemisphere during November. Rising in the

east-southeast about 90 minutes before the sun at the start of the month, the innermost planet will reach its greatest elevation above the horizon on Nov. 8. The bright star Spica will be nearby on the right (south) and a bit fainter. After passing its peak, Mercury will sink rapidly back toward the glow of sunrise, disappearing by month's end.

## **Meteor shower**

The annual Leonid meteor shower will peak on the night of Nov. 17-18. The Leonids appear to radiate from the constellation Leo the Lion. They are caused by streams of fast-moving dust particles from Comet Tempel-Tuttle, which rounds the sun every 33 years.

Watch for meteors after midnight local time as sickle-shaped Leo gets higher in the east. That is when your part of the planet will be rotating into the path of the oncoming meteors. The higher Leo is above the horizon, the more meteors will appear all over the sky. The bright star Regulus is part of Leo and can serve as a marker for the radiant, the point from which the meteors appear to come. The first-quarter moon will set before meteors begin to appear, so in a clear sky there may be as many as 20 to 40 meteors per hour after 3 a.m.

Light pollution wipes out many meteors for observers, so choose a dark site with an open view of as much of the sky as possible. Give your eyes at least 15 minutes to adjust to the dark. A lawn chair and blanket will help you stay comfortable as you watch the sky.

More information about meteor showers is available from the American Meteor Society at: [www.amsmeteors.org/showers.html](http://www.amsmeteors.org/showers.html) .

## **Light pollution**

Satellite imagery showing the extent of light pollution can be viewed at [earth.google.com](http://earth.google.com) , which has a free program called Google Earth that can be downloaded. Look under "Featured Content," "NASA" and "Earth City Lights." You can locate patches of darker sky nearest your home, as well as the roads to reach them. The image resolution is a few kilometers, so you may not be able to find dark spots in the suburbs, for example. That may change if a recent proposal for a "light-pollution satellite" is approved. Its goal would be to provide 50- to 100-meter resolution for the globe at night, mapping the entire planet once a year.

## **Moon phases**

The moon will be at third quarter on Nov. 1, new on Nov. 9, at first quarter on Nov. 17 and full on Nov. 24.

Source: Indiana University

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