

Viewing Mars

Mad Mars Facts

- Maximum Temperature: 98° F (37° C)
- Minimum Temperature: -190°F (-123° C)

If you took all the water vapor in the Martian atmosphere and condensed it onto Mars' surface, it would make a layer less than 1 mm thick!

Mars will get as close as .47 AU, or 43.6 million miles (70.2 million km), providing our best viewing opportunity until 2018 due to its location in the sky.

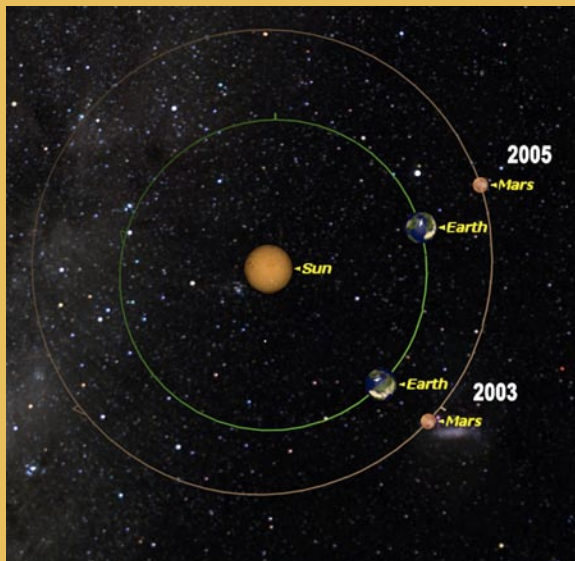
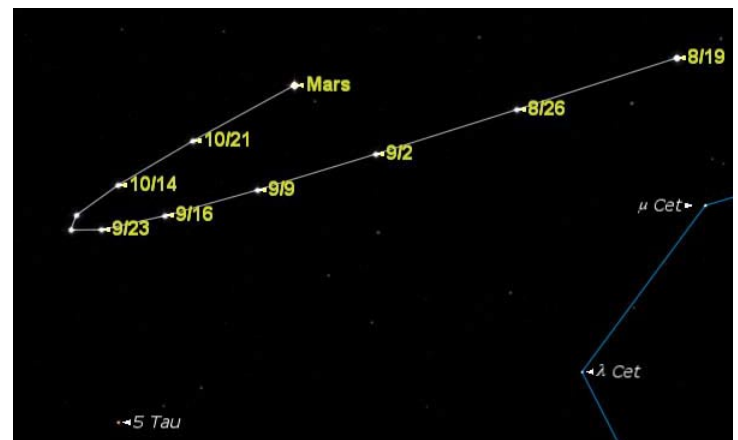


Image from *Starry Night® Pro Plus* showing the relative paths of Earth and Mars from August 2003 and October 2005.

Mars' path over the course of the night from a North American viewing location. Image from *Starry Night® Pro Plus*.

Mars is coming back. The Red Planet, the only one whose surface we can see in any detail from the Earth, has begun the best apparition it will give us until the summer of 2018.

Mars is currently in the constellation of Aries, the Ram, and doesn't rise until around 10:45 p.m. local daylight time. There is certainly no mistaking it once it comes up over the east-southeast horizon. Presently shining at magnitude -0.8 , it now ranks fifth among the brightest objects in the night sky, surpassed only by the Moon, Venus, Jupiter and Sirius (the brightest star in the sky).



Mars moves in mysterious ways. Here's what it will do from Aug. 19 through Oct. 28 (final position labeled "Mars"). The map is as of midnight from mid-northern latitudes. Image from *Starry Night® Pro Plus*.

Mars will be much brighter than usual for the next few months making it good hunting for amateur astronomers!



Naked Eye and Binocular Viewing

And as it continues to approach Earth, Mars will only be getting brighter in the coming weeks: it will surpass Sirius on Sept. 21 and on Oct. 4 it will rival Jupiter and as a consequence (until Nov. 26), hold forth as the second-brightest planet. Mars will appear as a bright reddish orange dot— some people call a “butterscotch”— to your naked eye or when viewing through a pair of binoculars.

Mars comes closest to the Earth on the night of Oct. 29 (around 11:25 p.m. Eastern daylight time). The planet will then lie 43,137,071 miles (69,422,386 kilometers) from Earth measured center to center. Mars will arrive at opposition to the Sun (rising at sunset, setting at sunrise) nine days later, on Nov. 7.

From Oct. 29 through Nov. 9, Mars will blaze at magnitude -2.3 , more than twice as bright as Sirius, but still inferior to Venus. Mars will still be positioned within the constellation of Aries, the Ram, at a declination of $+16$ degrees.

This is in contrast to the August 2003 opposition, when it was situated much farther south at a declination of -16 degrees. Back then, for observers especially in the northern United States and southern Canada, Mars was so low in the sky that atmospheric turbulence hampered telescopic work more than usual. However, using a telescope, you may be able to see some subtle surface detail on Mars, possibly even the southern polar ice cap.

Telescope Viewing

Most telescopes of any aperture will give pleasing views of Mars, Venus, Jupiter and Saturn, because they’re so big, bright, and distinctive. High-quality refractors have the edge for studying the planets because of their “clear apertures.” Any time something blocks a portion of a telescope’s aperture, such as a secondary mirror or its support structure (called a “spider”), some image sharpness and contrast are lost.

While reflector and catadioptric telescopes (mainly

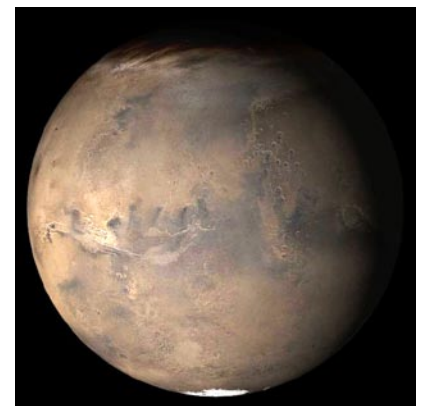


“Cassegrains”) need small, secondary mirrors to redirect light to their eyepieces, refractors have a clear light path straight to their eyepieces, keeping contrast at its greatest. Reflectors and catadioptric telescopes work very well on the planets; it’s just that a larger aperture is needed to give the same view.

Regardless of the type of telescope, always use your best eyepieces to get the sharpest views. This is especially critical with the planets. Most telescopes come with one or two eyepieces that are fine to start off with, but usually cannot reveal a telescope’s full potential. The same instrument will show much more planetary detail just by switching eyepieces. It’s almost as good as getting a whole new telescope!

But a final bit of caution: even a large telescope will show neophyte observers little when they first look at Mars. To say the least, Mars will likely prove to be a challenging object: the disk is relatively tiny and more often than not it will usually be blurred to a degree by the Earth’s atmosphere. However, if you inspect the planet night after night, your eye will gradually become accustomed to the low contrasts and soft boundaries of the disk mottlings.

Northern Autumn/ Southern Spring on Mars. Image from Mars Global Surveyor. Image Credit: NASA/JPL/ Malin Space Science Systems



Read more about viewing Mars in “What you can see” and “Mars Photography”

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