

“HEAVENLY NEWS

“Get Ready for Mars in 2012”

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Get ready to look for a bright reddish looking star in the Winter sky...that's Mars, Earth's outer neighbor, the fourth planet from the Sun. Mars has impressive surface features such as enormous volcanoes and valleys that are frequently obscured by huge dust storms. The uniquely red global surface of Mars is marked by many interesting features - some like those on the Earth and others strangely different. The reddish color is caused by rust (iron oxide) in the soil. Some of these features are; volcanoes, canyon systems, river beds, cratered terrain, and dune fields.

On August 27, 2003, Mars made its closest approach to Earth and maximum apparent brightness in nearly 60,000 years. This occurred when Mars was one day from opposition and about three days from its perihelion (the point nearest the sun in the orbit of a planet or other celestial body), making Mars particularly easy to see from Earth.

The Community Observatory receives numerous inquiries about Mars after the annual “hoax email” is sent each summer announcing that Mars will look as big as the Moon in August. Sorry to say it but, prior to the spectacular August 2003 view of Mars (and even then it was nowhere near the size of our moon!), the last time it came so close is estimated to have been in 617 BC, and the next time will be in 2287.

Not to worry, the history of observations of Mars is marked by the oppositions of Mars, when the planet is closest to Earth and hence is most easily visible, which occur every couple of years. Even more notable are the perihelic oppositions of Mars, every 15 or 17 years, and are distinguished because Mars is close to perihelion, making it even closer to Earth.

But Mars' relative position to Earth also has scientific significance. For instance, NASA began a historic voyage to Mars with the November 26, 2011 launch of the Mars Science Laboratory, that carries a car-sized rover named Curiosity. Curiosity is part of a sophisticated lander-rover mission for advanced studies on the Martian surface. Originally scheduled to be launched in December 2009 and land on Mars in October 2010, it was delayed to the 2011/2012 apparition of Mars.

This mission will pioneer precision landing technology and a sky-crane touchdown to place Curiosity near the foot of a mountain inside Gale Crater on Aug. 6, 2012. During a nearly two-year prime mission after landing, the rover will investigate whether the region has ever offered conditions favorable for microbial life, including the chemical ingredients for life.

The mission's landing site offers Curiosity access for driving to layers of the mountain inside Gale Crater. Observations from orbit have identified clay and sulfate minerals in the lower layers, indicating a wet history.

Precision landing maneuvers as the spacecraft flies through the Martian atmosphere before opening its parachute make Gale a safe target for the first time. This innovation shrinks the target area to less than one-fourth the size of earlier Mars landing targets. Without it, rough terrain at the edges of Curiosity's target would make the site unacceptably hazardous.

The innovations for landing a heavier spacecraft with greater precision are steps in technology development for human Mars missions. In addition, Curiosity carries an instrument for monitoring the natural radiation environment on Mars, important information for designing human Mars missions that protect astronauts' health.

Gazing up at the winter sky, when you see that pretty red star...consider what it means for the future of scientific discovery and space travel. On a clear sky, cold winter evening at the Community Observatory, Mars will certainly be one of the many celestial bodies we will be viewing in the 14 inch telescopes. Go to www.communityobservatory.com for more information about the observatory.