

**Mars Portrait 2016**

# Mars Portrait near 2016 Close Approach

Bright clouds, frosty polar caps, and a vivid, rust-colored landscape reveal Mars to be a dynamic seasonal planet in this Hubble Space Telescope view. This image was taken in May 2016, as the Red Planet was nearing its closest approach to Earth since 2005.

The bright, orange-colored region in the center, called Arabia Terra, is about 2,800 miles across. The rusty color comes from actual rust (iron oxide) particles in the soil. In and around Arabia Terra are several large circular craters from ancient impacts (see inset image for locations). Along the lower right limb of the planet is a giant impact crater, Hellas Basin. At 1,100 miles across and 5 miles deep, Hellas is one of the largest impact craters in the solar system.

On the right in the image is a large, dark region called Syrtis Major. Within this region, late afternoon clouds pass over an ancient extinct volcano. Clouds can also be seen along the left side of the planet, extending down to the southern polar cap. The polar caps of Mars include both water and carbon dioxide ices. The northern polar cap is relatively small, as this image was taken during late summer for Mars' northern hemisphere.

Hubble took the image on May 12, 2016, when Mars was 50 million miles from Earth. A few days later, Mars passed through opposition, the time when the Sun and Mars are in opposite directions in the sky. Mars is especially photogenic during opposition because it can be seen fully illuminated by the Sun as viewed from Earth. The interval between Mars oppositions is slightly more than two years, the time it takes for Earth's faster orbital motion around the Sun to catch and lap Mars' slower orbital motion. The next Mars opposition, in July 2018, was the closest encounter between Earth and the Red Planet until 2035.

This view of Mars contains the landing sites of several NASA Mars surface robotic missions, including Viking 1 (1976), Mars Pathfinder (1997), and the Opportunity Mars rover, which landed in 2004 and is still operating.

*Credit: NASA, ESA, the Hubble Heritage Team (STScI/AURA), J. Bell (ASU), and M. Wolff (Space Science Institute)*

## VOCABULARY

**Hemisphere:** Half of a spherical or roughly spherical body; for example, the northern and southern halves of the Earth, above and below the equator.

National Aeronautics and Space Administration

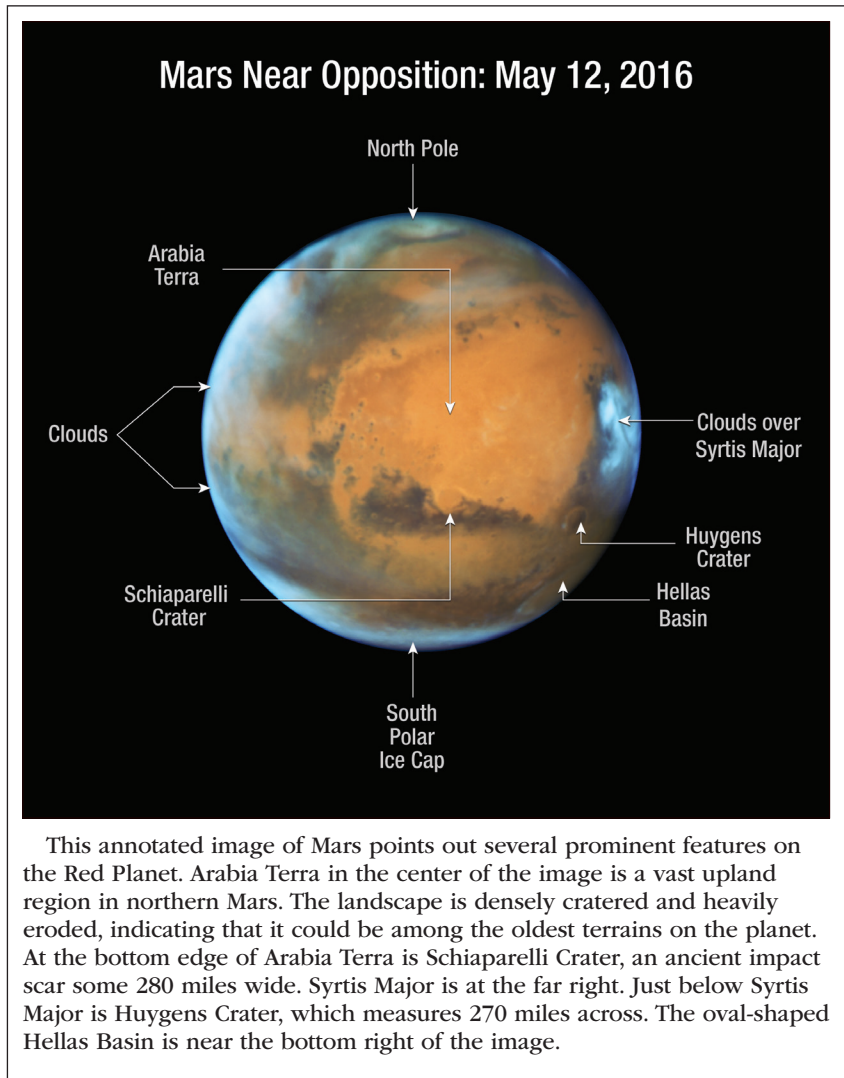
**Goddard Space Flight Center**

8800 Greenbelt Road

Greenbelt, Maryland 20771

[www.nasa.gov](http://www.nasa.gov)

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This annotated image of Mars points out several prominent features on the Red Planet. Arabia Terra in the center of the image is a vast upland region in northern Mars. The landscape is densely cratered and heavily eroded, indicating that it could be among the oldest terrains on the planet. At the bottom edge of Arabia Terra is Schiaparelli Crater, an ancient impact scar some 280 miles wide. Syrtis Major is at the far right. Just below Syrtis Major is Huygens Crater, which measures 270 miles across. The oval-shaped Hellas Basin is near the bottom right of the image.

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