

## Hubble's Sharpest View of Mars

The Hubble Space Telescope took this stunning portrait of the Red Planet on March 30, 1997, just as it was making a close pass to Earth some 60 million miles (100 million km) away. The image strengthens the view that the planet's weather is much more complex and unpredictable than previously believed. Earthlings experienced Martian weather up close for the first time in the 1970s, when the two Viking spacecraft landed on the surface and saw massive dust storms and apricot-colored skies. This Hubble image shows a much colder and cloudier atmosphere and demonstrates that the planet's climate has a flip side.

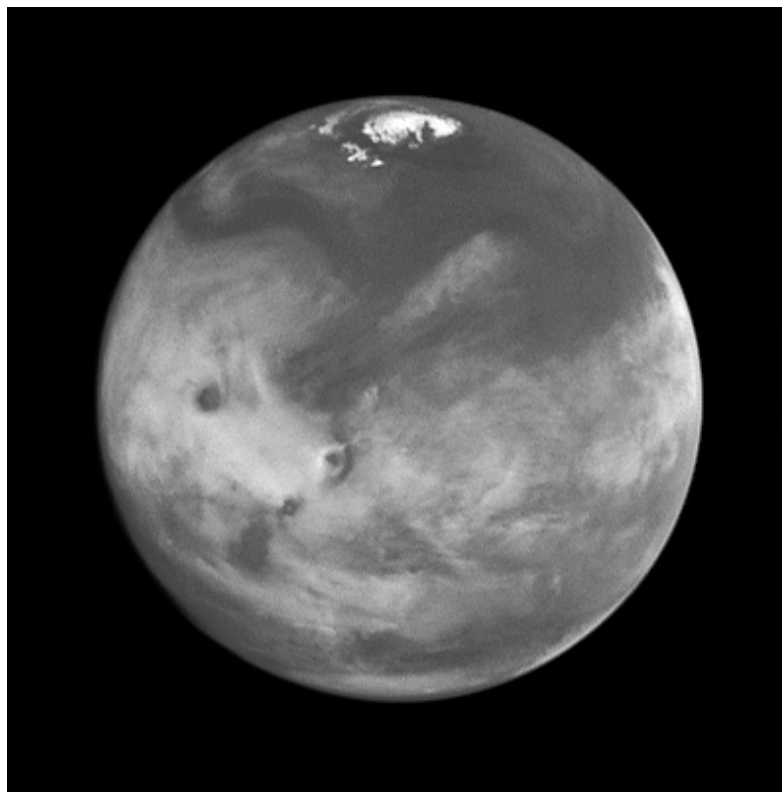
## Interplanetary Weather Forecasting

With Hubble, scientists for the first time are able to continuously study the weather and surface activity on Mars. This is important because NASA is planning several robot missions to Mars, and anticipating the weather conditions could be helpful in ensuring their success. Hubble's ongoing observations also are important for what they reveal about Earth's evolution and climate.

## Different Climate Conditions

Mars is in an egg-shaped orbit, so its distance to the Sun changes considerably during a Martian year. When Mars is closest to the Sun, the heat can trigger dust storms, which blow the planet's fine reddish soil across the globe. Consequently, Mars can look dramatically different once the dust settles. When Mars is farthest from the Sun, the atmosphere cools and produces planet-wide belts of water-ice clouds similar to Earth's thin cirrus clouds.

## Mars



## About the Image

This image shows Mars during the transition between spring and summer in the northern hemisphere (summer solstice). The north polar carbon dioxide (dry ice) frost cap is rapidly evaporating from solid to gas, revealing a much smaller permanent water ice cap. Bright water ice clouds are visible across the center and along the bottom of the image.

## Definitions

**Cirrus Cloud:** A high-altitude cloud composed of water-ice crystals, which is generally patchy or hazy in appearance.

**Summer Solstice:** The beginning of summer—when the planet's northern pole receives the maximum illumination from the Sun. For both Mars and Earth, this is the time of the "midnight Sun," when the pole is in continuous light.

**Dry Ice:** Solid carbon dioxide, which on Earth evaporates directly to gas if heated to  $-110^{\circ}\text{F}$ . Usually used as a refrigerant.

## Fast Facts

### Location

Mars is the fourth planet from the Sun and the seventh largest.

### Diameter

4,212 miles (6,794 km)

### Length of Day

24 hours, 37 minutes

### Moons

Phobos and Deimos

### Martian Year

687 Earth days

## Electronic Addresses

You can get images and other information about the Hubble Space Telescope on the World Wide Web.

Point your browser to <http://hubblesite.org/> and follow links from there.