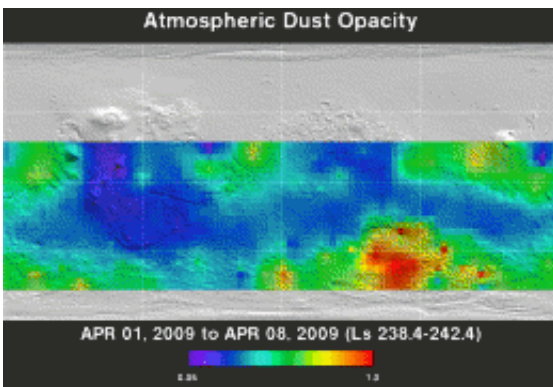


# Scientists monitor developing Mars dust storm

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Greens, yellows, and reds map the growing density of dust in the Martian atmosphere, as seen during the first week of April 2009 by ASU's Thermal Emission Imaging Spectrometer on NASA's Mars Odyssey orbiter. The storm originated in the Hellas impact basin, the red patch at lower right. (Image credit: NASA/JPL/Arizona State University)

(PhysOrg.com) -- Scientists at Arizona State University's Mars Space Flight Facility are using the Thermal Emission Imaging System (THEMIS) on NASA's Mars Odyssey orbiter to monitor a new dust storm that has erupted on the Red Planet.

The dust storm began in mid-March 2009, in the large Southern Hemisphere impact basin named Hellas. It has since grown as it spread northward in a patchy fashion. How large the storm will become is unknown, but previous storms have grown to envelop the whole planet

for weeks at a time.

"This storm is coming at a time in the Martian year — around the planet's closest approach to the Sun — when [dust storms](#) are common," says Philip Christensen, of the [Mars](#) Space Flight Facility on the Tempe campus. Christensen, a Regents' Professor of geological sciences in the School of Earth and Space Exploration, is the designer and principal investigator for the THEMIS camera.

"But so far," he says, "this storm has not reached the severity of the big dust storm of 2001, or even the more modest one in 2007."

Mars' closest approach to the sun comes April 21, and summer begins in the planet's southern hemisphere a month later. Both effects combine to produce the atmospheric heating that drives the dust activity.

## **Dust in the eyes**

Dust storms affect operations for all five spacecraft working at Mars. The fleet includes two NASA rovers on the ground (Spirit and Opportunity), plus three orbiters, two of which belong to NASA ([Mars Odyssey](#) and [Mars Reconnaissance Orbiter](#)) and one from the European Space Agency (Mars Express).

"If the dust causes a lot of obscuration, we lose the ability to image the ground," explains Christensen. "In big dust storms, the rover teams are strongly affected as dust in the air reduces sunlight which provides power for driving and science operations. And when the dust finally settles out, it coats the solar panels, diminishing their capability."

"We've noticed increasing opacity over the last several days," says Steve Ruff, of the Mars Space Flight Facility. "This has produced roughly a 20 percent drop in power for Spirit." Ruff is in charge of day-to-day

operations for the Miniature Thermal Emission Spectrometers, a mineral-scouting instrument each rover carries.

In the 2007 storm, dust blocked more than 99 percent of the sunlight for both rovers.

"When [dust](#) kicks up," Ruff says, "it hurts."

Provided by Arizona State University ([news](#) : [web](#))

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