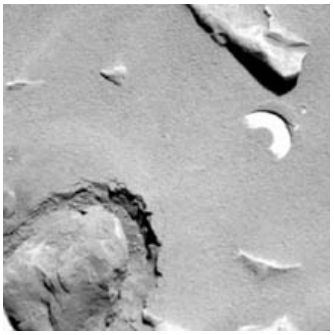
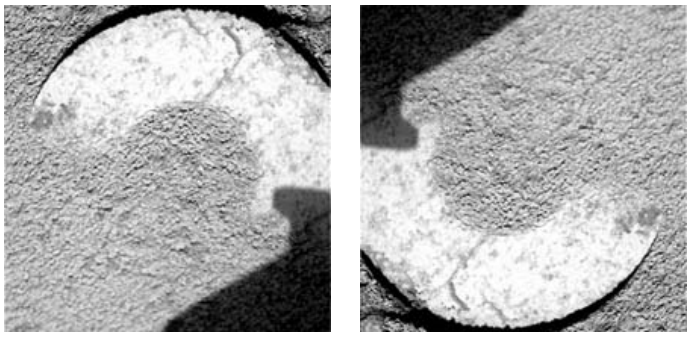
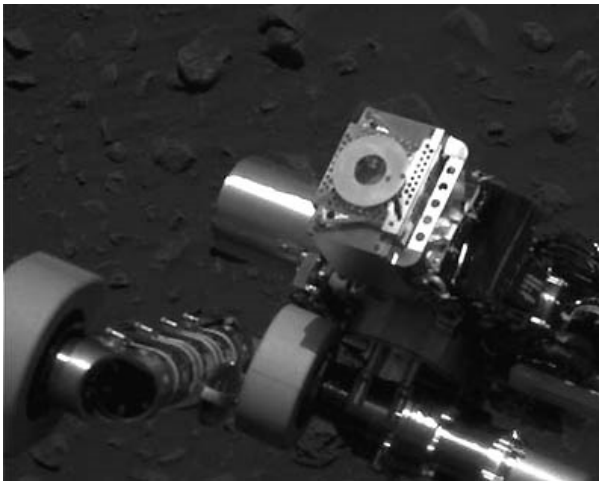
Updated - Mars Spirit and Opportunity Sol 65 and Sol 46



Spirit rover brushed off dust in semi-circle, taken by Right Panoramic Camera Non-linearized Sub-frame EDR acquired on Sol 65 of Spirit's mission to Gusev Crater at approximately 11:43:43 Mars local solar time, camera commandedto use Filter 1 (719 nm).



Left photo: Reversed 180 degrees from images posted at NASA website in **right photo.** Taken by Spirit rover Microscopic Imager Non-linearized full frame EDR acquired on Sol 65 of Spirit's mission in Gusev Crater at approximately at approximately 11:21:10 Mars local solar time. Images credit: NASA/JPL/Cornell/USGS.
To see original images, go to sol 65: **http://marsrovers.jpl.nasa.gov/gallery/all/spirit.html**



Mossbauer Spectrometer target ring on each of the Spirit and Opportunity rover's instrument arms. Image source: NASA/JPL/Cornell.

March 11, 2004 Pasadena, California - As raw images from the rovers continue to be posted at the NASA/JPL website without explanation, some are provocative. It is now clear that the Sol 65 Microscopic Imager photographs of the circular object with the shadow cast downward is an optical illusion caused by the images being placed upside down at the NASA/JPL website.

Before and After Spirit Rover Robotic Arm On Soil

Spirit rover arms above and below, images taken by Right Front Hazard Camera Non-linearized Downsampled EDR acquired on Sol 65 of Spirit's mission to Gusev Crater at approximately 11:30:03 Mars local solar time. Image credit: NASA/JPL.

NASA Updates: Spirit and Opportunity

SPIRIT UPDATE: Roving Toward the Rim - *sol 65, Mar 10, 2004*

"Spirit spent sol 65, which ended at 12:29 a.m. PST on March 10, analyzing soil targets with the alpha particle x-ray spectrometer, Moessbauer spectrometer and microscopic imager before stowing its arm, doing some remote sensing of the trench dubbed "Serendipity Trench," and then finally setting off for the longest directed drive to date. That drive was 27 meters (88.6 feet) toward the edge of Bonneville crater.

Spirit then attempted to use auto navigation to reach a target that was an additional 6 meters (19.7 feet) away. Sensitive obstacle avoidance software prevented Spirit from reaching the destination, and like yestersol, the rover completed several drives forward and back. Those drives resulted in a final odometer reading of 40.7 meters (133.5 feet) for the day, even though the total straight-line distance traveled was 30 meters (98.4 feet).

The 30-meter (98.4 feet) drive put Spirit close enough to Bonneville's edge to take images with the navigation cameras that reveal the opposite rim of the crater.

On sol 66, which ends at 1:09 a.m. PST on March 11, 2004, Spirit will drive up to the summit of the rim and show us what's inside with a 180-degree navigation camera panorama."

Rim of Bonneville Crater in distance as Spirit continues to travel over rocky ground.
Image taken by Left Front Hazard Camera Non-linearized Full frame EDR acquired on Sol 66 of Spirit's mission
to Gusev Crater at approximately 12:20:47 Mars local solar time. Image credit: NASA/JPL.

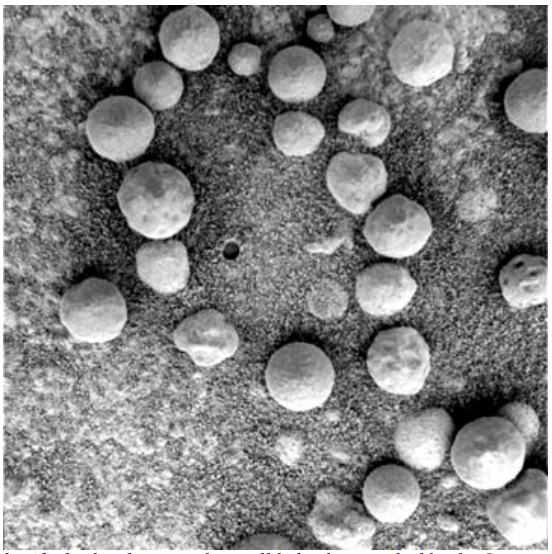
OPPORTUNITY UPDATE: Halfway Mark - *sol 45, Mar 10, 2004*

"On sol 45, which ended at 12:50 p.m. PST on Wednesday, March 10, Opportunity awoke to *Eclipse* by Pink Floyd in recognition of the transit of the martian moon, Phobos. A second song, *Meet Me Halfway* by Kenny Loggins, was played because Opportunity is halfway through its primary 90-sol surface mission.

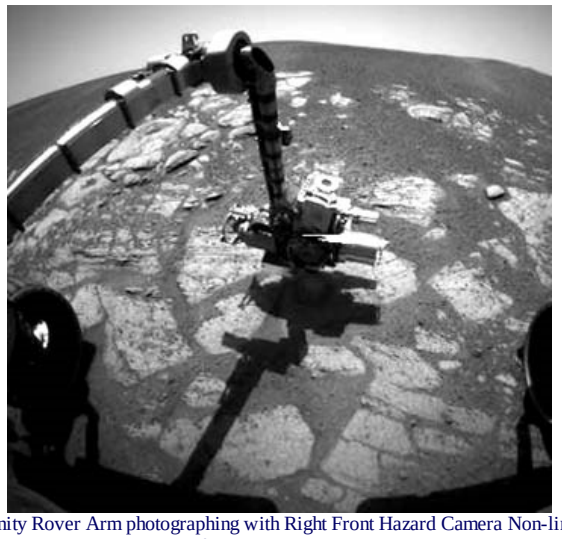
Opportunity used the rock abrasion tool brush to sweep off the dirt in and around the hole at 'Mojo 2' in the 'Flat Rock' area. Opportunity then took five microscopic images of the freshly brushed 'Mojo 2.'

The miniature thermal emission spectrometer took measurements at three locations on the surface of Mars, and then pointed upwards to observe the atmosphere in four different directions. The panoramic camera was also busy taking images of the magnets around the rock abrasion tool area, 'Mojo 2' post brushing, and a new area called 'Slick Rock.'

The plan for sol 46, which will end at 1:30 p.m. PST on Thursday, March 11, is to use the science instruments on the end of the robotic arm on the area dubbed 'Berry Bowl.'"



Many unidentified spherules around a small hole photographed by the Opportunity rover
Microscopic Imager Non-linearized Full frame EDR acquired on Sol 46 of Opportunity's mission to Meridiani Planum
at approximately at approximately 11:40:19 Mars local solar time. Image credit: NASA/JPL/Cornell/USGS.



Opportunity Rover Arm photographing with Right Front Hazard Camera Non-linearized Downsampled EDR acquired on Sol 45 of Opportunity's mission to Meridiani Planum at approximately 12:20:10 Mars local solar time. Image credit: NASA/JPL.

Websites:

http://marsrovers.jpl.nasa.gov/home/index.html

http://www.esa.int/export/esaCP/index.html

http://athena.cornell.edu

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