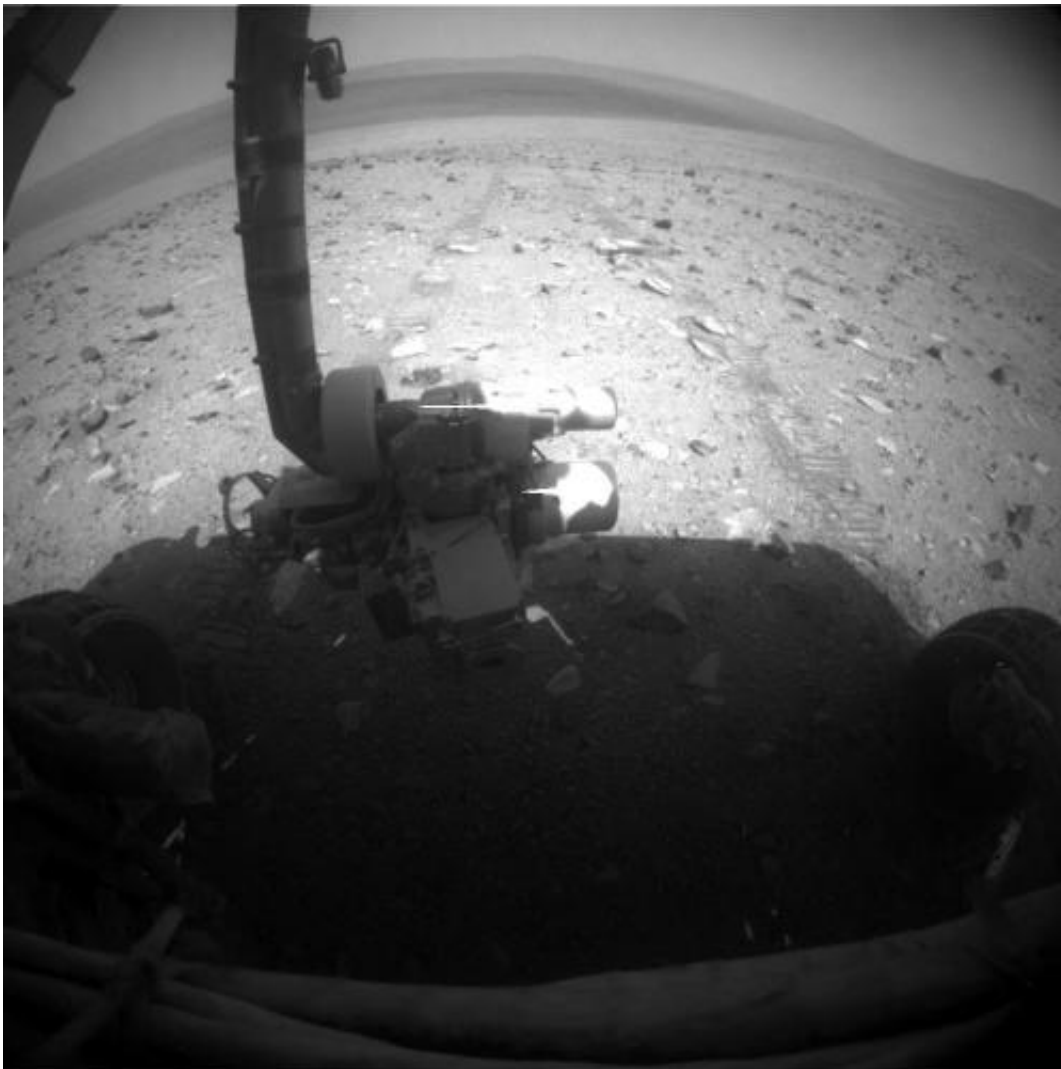


Repaired Opportunity rover readies for 'Marathon Valley'

September 17 2014, by Elizabeth Howell



Ready to roll: the Opportunity rover's wheels and tracks are visible in this picture taken on Mars on Sol 3,783 in September 2014. Credit: NASA/JPL-Caltech/Cornell Univ./Arizona State Univ.

With a newly cleared memory, it's time for Opportunity to resume the next stage of its long, long Martian drive. The next major goal for the long-lived rover is to go to Marathon Valley, a spot that (in images from orbit) appears to have clay minerals on site. Clay tends to form in the presence of water, so examining the region could provide more information about Mars' wet, ancient past.

The [rover](#) has driven further on Mars than any other human-made machine; as of Sept. 9, it had reached 25.28 miles (40.69 kilometers). But signs of age are showing as the rover moves through its 11th Earth year on Mars.

NASA recently halted science operations for a few days to reformat the rover's Flash memory, which was causing several reboots. The remote repair worked perfectly and the rover is ready to resume work, NASA said in an update Sept. 12.

A NASA planetary senior review panel from early September, which was evaluating the science value of several extended missions, said there are "software and communication issues that afflict the rover" that could affect its ability to send data. (This was written before the memory reformat.)

The major goal of Opportunity's latest extended mission, the review continued, is to find out what habitability conditions existed on Mars. This includes looking at the water, the geology and the environment.

"This will be achieved by measurements of rocks and soils, as well as atmospheric observations, as it traverses from Murray Ridge to Cape Tribulation," the report read.

"This extended mission will focus on the orbitally detected phyllosilicate deposits near Endeavour crater, which are considered to represent

deposits from the ancient Noachian period. This would represent the first time that such ancient deposits have been analyzed on the Martian surface."



The Opportunity rover is at the west rim of Endeavour Crater on Mars in this image sent on Sol 3,783 in September 2014 — after a successful Flash memory reset. Credit: NASA/JPL-Caltech/Cornell Univ./Arizona State Univ.

The report further cautioned that there is no proof yet that the

phyllosilicates (which are sheet silicate materials made of silicon and oxygen) are from the Noachian era, which represents geology that is more than 3.5 billion years old (depending on which source you consult). It added, however, that Opportunity is expected to be able to complete the science.

Meanwhile, enjoy these pictures from the rim of Endeavour Crater that Opportunity sent in the past few days.



A still from the Opportunity rover's navigation camera taken on Sol 3,783 in September 2014. At bottom is part of the solar panel cells used to power the

Martian rover. Credit: NASA/JPL-Caltech/Cornell Univ./Arizona State Univ.

Source: [Universe Today](#)

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