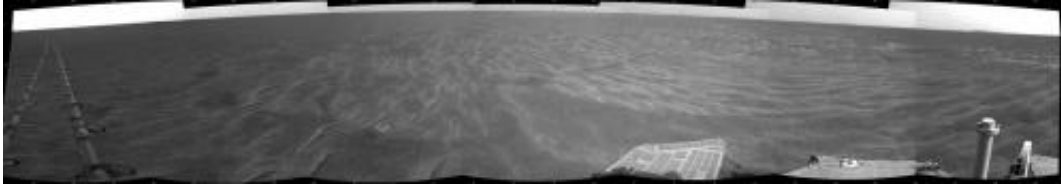


Mars Rover driving leaves distinctive tracks

May 19 2011, By Guy Webster



A dance-step pattern is visible in the wheel tracks near the left edge of this scene recorded by NASA's Mars Exploration Rover Opportunity. Credit: NASA/JPL-Caltech

(PhysOrg.com) -- When NASA's Opportunity Mars rover uses an onboard navigation capability during backward drives, it leaves a distinctive pattern in the wheel tracks visible on the Martian ground.

The [rover](#) team routinely commands Opportunity to drive backward as a precaution for extending the life of the rover's right-front wheel, which has been drawing more electrical current than the other five wheels. Rover drivers can command the rover to check for potential hazards in the drive direction, whether the rover is driving backward or forward. In that autonomous navigation mode, the rover pauses frequently, views the ground with the [navigation camera](#) on its mast, analyzes the stereo images, and makes a decision about proceeding.

When the drive is backward, the drive-direction view from the navigation camera is partially blocked by an antenna in the middle of the rover. Therefore, at each pause to check for hazards, the rover pivots

slightly to the side to get a clear view. If it sees no hazard, it turns back to the direction it was going and continues the drive for about another 4 feet (1.2 meters) before checking again. This set of activities leaves tracks showing the slight turnout on a rhythmically repeated basis, like a dance step.

Opportunity has driven more than 1.6 miles (about 2.6 kilometers) since leaving "Santa Maria" crater in late March and resuming a long-term trek toward the much larger Endeavour crater. Opportunity has now driven more than 18 miles (29 kilometers) on Mars.

Opportunity and its twin rover, Spirit, completed their three-month prime missions on Mars in April 2004. Both rovers continued in years of bonus, extended missions. Both have made important discoveries about wet environments on [ancient Mars](#) that may have been favorable for supporting [microbial life](#). Spirit has not communicated with Earth since March 2010.

More information: The pattern appears in an image posted at photojournal.jpl.nasa.gov/catalog/PIA14129

Provided by JPL/NASA

Citation: Mars Rover driving leaves distinctive tracks (2011, May 19) retrieved 3 May 2024 from <https://phys.org/news/2011-05-mars-rover-distinctive-tracks.html>

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