Opportunity Backs Out Of Potentially Sticky Situation

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Opportunity is healthy and traveling westward around "Erebus Crater." The rover is running in restricted sols, so the team is able to drive it only every other sol and has been doing so. On sol 601, Opportunity drove 34 meters (112 feet).

On sol 603, the team planned a 45-meter (148-foot) drive. However, after the first 5-meter (16-foot) segment, the onboard slip check reported 44.5 percent slip. Because slip limits had been set to 40 percent, the drive was successfully stopped. On sol 605, the rover drove 5.3 meters (17 feet) back to outcrop material.

Note: The onboard slip check uses visual odometry to compare nearby features and determine the actual distance traveled. Software computes the amount of slip based on the difference between the actual distance traveled versus commanded wheel rotations. The team has defined a maximum allowable percentage of slip, and if the computed slippage exceeds the maximum allowable, further driving is precluded.

Sol-by-sol summaries

Sols 599 and 600 (Sept. 30 and Oct. 1, 2005): The team planned two sols of remote sensing, including coordinated observations by the panoramic camera and miniature thermal emission spectrometer and use of the navigation camera to complete a 360-degree panorama.

Sols 601 and 602: Opportunity drove 34 meters (112 feet) on sol 601,

heading northwest, to have a better view of the westward path. The drive was successful, and the maximum slip was reported at 2.5 percent. For sol 602, the team planned remote sensing.

Sols 603 and 604: On sol 603, the team scheduled a 45-meter (148-foot) drive. The first portion of the drive was blind for 35 meters (115 feet) with slip checks every 5 meters (16 feet), followed by 10 meters (33 feet) of autonomous navigation. However, after the first 5-meter (16-foot) segment, the onboard slip check detected slippage higher than the limit that had been set as a precaution, and the rover properly stopped.

Wheel sinkage was approximately 5 centimeters (about 2 inches) for the left front wheel and 4 centimeters (1.6 inches) for the right front wheel. On Sol 604 the rover performed untargeted remote sensing.

Sol 605 (Oct. 6, 2005): The team analyzed the rover's position and the terrain and decided to back up Opportunity about 5 meters (16 feet) onto outcrop, the starting point of sol 603's drive. The sol 605 drive included slip checks and hazard-avoidance-camera movies of the wheels.

Pre-drive, mid-drive, and post-drive imaging was acquired. The 5.3-meter (17-foot) drive was successful, and Opportunity reached the outcrop. Slippage during the drive ranged from 3 to 12 percent.

Opportunity's total odometry as of sol 605 was 6,009.88 meters (3.73 miles).