

Riding Ripples And Working Issues

November 3 2005

Opportunity is healthy and traversing around the northwest side of "Erebus Crater." The rover has driven on every sol possible, acquiring during and after each drive, and surveying the sky and horizon in the mornings with the panoramic camera.

Sol-by-sol summaries

Sol 619 (Oct. 20, 2005): Opportunity drove 24 meters (79 feet) in a zigzag pattern to safely cross ripples.

Sol 620: The rover's observations used its panoramic camera to observe a feature informally named "Mogollon Rim" (for an area in Arizona) and onboard magnets. It also checked for dust devils.

Sol 621: Opportunity drove 30 meters (98 feet), mostly on sand. The average slip was only 2.5 percent.

Sol 622: Untargeted observations included a panorama to examine the amount of light reflected from the surface and a ground survey. A software glitch resulted in losing the afternoon communication relay session with Mars Odyssey.

The problem was a repeat of one experienced previously on Spirit's sols 131 and 209 and on Opportunity's sol 596. It occurs when a "write" command reaches an area of memory during a vulnerability period of a few microseconds when that memory location cannot accept a new write command. The rover team is investigating the problem.

Sol 623: This was a recovery sol. Opportunity returned data directly to Earth during an X-band communication window after calibration of the high-gain antenna. It also performed a calibration of the panoramic camera mast assembly (the rover's "head") to regain use of it and to stow the camera. One of the rover's two batteries would not recharge, which at first puzzled the team. A switch that allows battery 1 to recharge was not enabled, so the battery was temporarily unable to recharge.

On the following morning (sol 624), the switch was enabled and the battery subsequently operated normally. Engineers' analysis indicates that recharging was not enabled on sol 623 because the rover did not use enough electricity from the battery during the previous sol (622) to draw the battery's charge below a level pre-set as a threshold for allowing a recharge.

Sol 624: The rover drove and used the panoramic camera to look at its tracks. It covered 27.3 meters (nearly 90 feet).

Sol 625: At the end of sol 624, Opportunity found itself in an area with relatively small ripples. In this benign terrain, it was given commands for a drive that included a segment of autonomous navigation after an approximately 30-meter (98-foot) segment of blind driving. Preliminary analysis shows a total distance of 45.7 meters (150 feet) was traversed.

Sol 626: For this sol the team planned another drive, with about 30 meters (98 feet) expected.

Opportunity's total odometry as of sol 625 (Oct. 27, 2005) is 6,265 meters (3.89 miles). This week (sols 619 to 625), the rover drove 127 meters (417 feet).

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