

Spirit Tests New Computer Smarts

December 27 2006



Spirit is healthy and conducting scientific analysis of a rock target known as "Palma." During the past week, Spirit tested some new software sequences, including a "watch for dust devil" command and an automatic placement command. On the rover's 1052nd Martian day, or sol, of exploring Mars (Dec. 18, 2006), Spirit ran part of the dust devil watch, acquiring six images during the process, but did not run the dust-devil detection part of the program. Rover handlers planned to rerun the test on sol 1058 (Dec. 24, 2006).

On sol 1053 (Dec. 19, 2006), Spirit terminated a test run of a command

sequence for autonomous placement of the rover's robotic arm on a scientific target. The sequence involved touching a target with the Moessbauer spectrometer, changing tools to the microscopic imager and suspending it 10 centimeters (4 inches) above the target, changing tools to the alpha-particle X-ray spectrometer, and placing the alpha-particle X-ray spectrometer on the target. Spirit made preparations to run the test again on a new target on the same day that some Earthlings celebrate as Christmas Eve.

Sol-by-sol summary

Sol 1051 (Dec. 17, 2006): Spirit turned to face a rock outcrop known as "Esperanza," acquired images with the hazard avoidance cameras and a 360-degree panorama with the panoramic camera, and scanned the sky for clouds with the navigation camera. The rover measured atmospheric dust, looked at the sky, examined the terrain, and completed a survey of individual rock grains, known as clasts, using the panoramic camera.

Sol 1052: Spirit conducted step No. 2 of the new capability to watch for dust devils and scanned the sky for clouds with the navigation camera.

Sol 1053: Spirit acquired microscopic images of Palma, conducted step No. 2 of the autonomous placement test, monitored dust in the atmosphere with the panoramic camera, scanned the sky and ground with the miniature thermal emission spectrometer, scanned the sky for clouds with the navigation camera, and monitored the rover mast for dust accumulation.

Sol 1054: Spirit scanned the sky and ground with the miniature thermal emission spectrometer and collected miniature thermal emission spectrometer data from a ground target known as "Melchior." The rover continued to measure atmospheric dust opacity and take images of the sky with the panoramic camera.

Sol 1055 (Dec. 21, 2006): Because the rover was not stationed at the appropriate distance from the target for the automatic placement test, Spirit prepared to run the test with the alpha-particle X-ray spectrometer a second time, followed by six hours of measurement with the instrument. Spirit was slated to scan the sky, ground, and a target known as "Druzhnaya" using the miniature thermal emission spectrometer as well as acquire frames for a dust devil movie.

Sol 1056: Plans called for four hours of analysis of Palma using the Moessbauer spectrometer, measurements of atmospheric dust with the panoramic camera, a check for changes over time in the miniature thermal emission spectrometer, and a scan of the ground and sky at various elevations using the miniature thermal emission spectrometer. Spirit was also to acquire panoramic camera and stereo images of a rock nicknamed "Orcadas."

Sol 1057 (Dec. 23, 2006): Plans called for Spirit to conduct an additional 3.5 hours of study of Palma using the Moessbauer spectrometer, measure atmospheric dust with the panoramic camera, check for drift (changes in time) in the miniature thermal emission spectrometer, scan the sky and ground with the miniature thermal emission spectrometer, check the calibration target of the same instrument, and use it to scan a rock target known as "Gueslaga."

Odometry: As of sol 1054 (Dec. 20, 2006), Spirit's total odometry was 6,886.80 meters (4.28 miles).

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