

Spirit In Kansas

October 31 2005

Spirit drove to an outcrop informally named "Kansas" to prepare for a series of robotic arm activities on a target called "Kestrel."

Engineers tested a new UHF-only operation for Spirit. Throughout the mission, NASA's Mars Odyssey orbiter has been successfully receiving data from the rovers using its UHF (ultra-high frequency) antenna and relaying the data to Earth. In the new UHF-only operation, the team attempted to demonstrate how Spirit could also receive commands from Mars Odyssey via UHF antennas.

Spirit usually receives commands through its high gain antenna, which collects radio waves in the X-band sent directly from Deep Space Network antennas on Earth.

During sols 641 through 645, Mars Odyssey attempted both to send commands to Spirit and to collect data from Spirit. The commanding was successful on sols 640 and 645, but on sol 644, during receipt of the command bundles, Spirit's computer reset due to flight software difficulties with handling the command loads at the rate of 8 kilobits per second. As a result, all the active sequences were deactivated and Spirit went to automode.

On sol 646, Spirit recovered from automode and continued the robotic arm work on Kestrel.

Sol-by-sol summaries

Sol 641 (Oct. 22, 2005): Spirit performed targeted remote sensing.

Sol 642: Spirit drove toward the outcrop Kansas to prepare for using tools on its robotic arm to study the outcrop. The drive was successful.

Sol 643: Spirit performed untargeted remote sensing and attempted to observe meteors at night. The team could not confirm any meteors in the pictures from sol 643.

Sol 644: The original plan for sol 644 was to deploy the robotic arm, then to take images of the target area Kestrel with the microscopic imager both before and after brushing the area with the rock abrasion tool. The plan also included an alpha particle X-ray spectrometer reading of the brushed surface at night. A computer reset occurred during the morning Odyssey communications pass of sol 644, and the rover went into automode, so it did not carry out the original plan.

Sol 645: Spirit remained in automode on sol 645, but data indicated that the rover was healthy. Commands were then sent successfully via the Odyssey spacecraft's UHF antenna.

Sol 646: Spirit carried out the science activities from sol 644's plan. The rover is back to normal operation.

As of the end of sol 646, (Oct. 27, 2005), Spirit has driven 5,113 meters (3.18 miles).

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