est point to the planet on each orbit in order to provide good viewing for the cameras and the laser altimeter.

The science data obtained is really a bonus to the mission, as a large amount of data before the start of mapping was not part of the original mission plan. Many images of the martian surface, with better resolution than ever before, have been recorded. The laser altimeter has found the northern hemisphere of the planet to be very flat and has mapped the northern polar cap during its period of greatest extent. Several opportunities were taken to look at controversial features in the Cydonia region and at the larger of the two martian moons, Phobos.

Aerobraking was resumed again on September 14. Over the next four months the orbital period will be reduced from the current 11.6 hours to 2 hours and the orbit will become more and more circular. Because of the shorter orbital period, the opportunity to take additional science data will be limited until mapping begins in March 1999.

The flight operations project team is examining the expected performance of the deployment mechanism for MGS's high-gain antenna. Testing on some other spacecraft has indicated that the damper, which is designed to deploy the antenna in a slow and controlled manner, may in fact allow it to deploy too fast, perhaps resulting in some damage. In order to maximize the success of the MGS's mission, the flight team may elect to delay the deployment until after the first, most important, mapping data has been returned from the spacecraft. They may even wait until MGS has provided its radio relay support to the lander and penetrators of the next Surveyor mission to Mars, which lands in December 1999. Otherwise, the MGS spacecraft and its science payload are in excellent condition and have been performing very well.

The Mars Surveyor Operations flight team, which operates MGS, is ready for and looking forward to the completion of aerobraking. This team will also operate the Mars Climate Orbiter and Mars Polar Lander, which launch in December 1998 and January 1999, so a very busy year of space-

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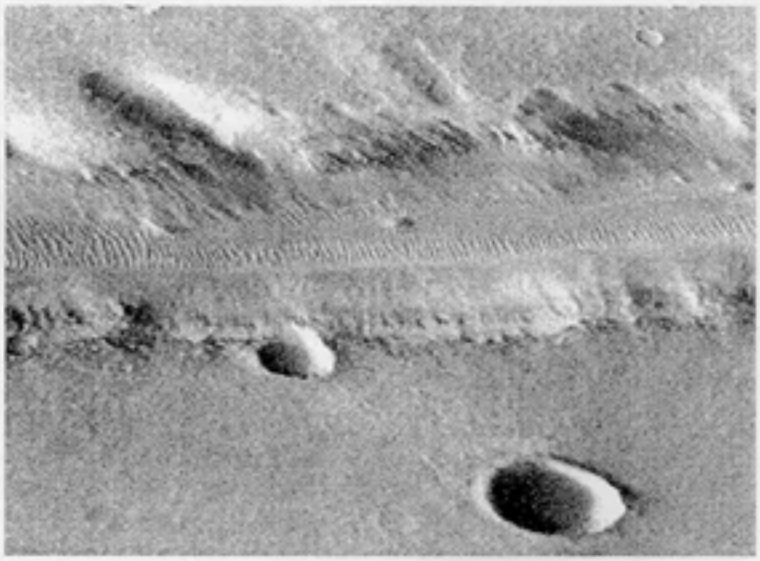

MOC Image of Nigel Valley (Image compliments of Malin Space Science Systems/NASA; #P006-05)

Scientific Results of the Mars Pathfinder Mission

Mars Pathfinder landed safely at 10 a.m. PDT on July 4, 1997, deployed and navigated a small rover, and collected data from three science instruments and ten technology experiments for three months. Although designed primarily as an entry, descent, and landing demonstration, the first low-cost, quick Discovery-class mission to be completed returned 2.3 billion bits of new data, including over 16,500 lander and 550 rover images, 16 chemical analyses of rocks and soil, and 8.5 million individual temperature, pressure, and wind measurements. The rover (named Sojourner) traversed 100 m clockwise around the lander, exploring about 200 m^2 of the surface. The mission captured the imagination of the public, garnered front-page headlines during the first week of mission operations, and went on to became one of NASA's most popular missions. A total of about 566 million Internet "hits" were registered during the first month of the mission, with 47 million hits on July 8 alone, making the Pathfinder landing by far the largest Internet event in history at the time.

The spacecraft was launched on December 4, 1996, and had a seven-month cruise to Mars. The vehicle entered the atmosphere directly following cruise stage separation. Parachute deployment, heatshield and lander separation, radar ground acquisition, airbag inflation, and rocket ignition all occurred before the landing at 2:58 a.m. true local solar time (9:56:55 a.m. PDT). The lander bounced at least 15 times up to 12 m high on one of the rockiest locations on Mars without airbag rupture, thereby demonstrating the robustness of this landing system. Unconnected disturbed soil patches indicate that the final few bounces of the lander were from the east-southeast and were followed by a gentle roll to

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