

Mars Exploration Rover Update #2 – August 23, 2004

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<http://marsrovers.jpl.nasa.gov/mission/status.html>

OPPORTUNITY UPDATE: Opportunity Team Decides Against Dunes – sol 200–203, August 23, 2004

On sol 200 Opportunity was commanded to perform some remote sensing and some rock abrasion tool diagnostics in response to an activity that faulted out on sol 199. During these diagnostics on sol 200, the tool failed to respond as desired to a command to calibrate the grind motor. Analysis of this event suggests that there is a piece of debris (probably a rocky chunk of Mars) trapped between the grind bit and the brush bit. The rover team believes that it can be freed by turning the bits in reverse, but they are still evaluating the best approach to remedy the situation. There are several options available. The team decided to continue the investigation of this anomaly while pressing on with other objectives.

On sol 201 the rover was commanded to stow its arm and drive to a position about 12 meters (about 39 feet) clockwise around the crater. The intent is to head towards a dune tendril that reaches out of the bottom of the crater and may be accessible without having to drive into terrain that is too sandy for the rover to safely traverse. The drive went very well, and the rover ended up in the expected place.

On sol 202 the rover was commanded to proceed a little ways downslope. Team members were not able to command the drive the rover as far as they might have liked because they did not get all the data they hoped to get in the afternoon downlink pass on sol 201. The terrain around the rover is heavily coated with sand and dust, so each traverse requires careful evaluation to make sure there is enough rock material to drive on with confidence. From the images available, the team determined it could safely command only about a 1-meter (3.3-foot) drive. This drive proceeded as expected. At the end of the drive, panoramic camera images were acquired directly in front of the rover and out to the dune tendril. These images will be used to assess traversability to this sandy feature.

On sol 203 the team decided to scratch the approach to the dune tendril and, instead, headed the rover back towards "Axel Heiberg" and another target named "Ellesmere" for some soil observations. The terrain between the rover and the dune tendril did not present clear evidence of rocky plates to give the rover sufficient traction. Rather than spend more time in an attempt to scout further for an approach path, the decision was made to abandon the quest for the dune tendril. A drive of approximately 14 meters (46 feet) positioned the rover where it will be able to zero in on Ellesmere next. There was an apparent combination of slip or induced heading change, or both, due to the sandy terrain, which resulted in the rover ending up about 3 meters (about 10 feet) farther left than expected. This also caused Opportunity to unintentionally run over a patch of fine soil with some small dune-like ripples in it. The team will be assessing this traverse error, but it is par for the course when driving this far on such sandy, sloped terrain.