

**Thursday, March 16, 2006**  
**POSTER SESSION II: MER — SPIRIT**  
**7:00 p.m. Fitness Center**

Li R. Arvidson R. E. Agarwal S. Bell J. Brodyagina E. Crumpler L. Des Marais D. J. Di K. Golombek M. Grant J. Kirk R. L. Maimone M. Matthies L. H. Malin M. Parker T. Soderblom L. A. Squyres S. W. Wang J. Yan L. Athena Science Team

*New Topographic Products and Rover Localization Results for the 2003 Mars Exploration Rover Mission* [#2118]

For over two years of MER surface operations, topographic maps, rover traverse maps, and updated rover locations of Spirit and Opportunity have supported tactical and strategic mission operations. Here we present the recent topographic products and the latest localization results.

Leer K. Basso B. Binau C. Goetz W. Gorevan S. Hviid S. F. Kusack A. Madsen M. B. Squyres S. W. Wilson J.

*Simulating Collection of Dust on the RAT Magnets Onboard the Mars Exploration Rovers* [#1784]

RAT magnet experiments with the aim to examine the dust collected on the RAT magnets during grinding. Tell the difference between bulk rock and collected dust by Mössbauer spectroscopy.

Moller L. E. Tuller M. Baker L. Kuhlman K.

*Mars Dust Micromechanics: MER Marsdial and Laboratory Observations* [#2407]

Small spheres yield micromechanics data for Mars dust surrogate deposition in laboratory trials. We use images of the MER Marsdial gnomon sphere to examine Mars dust angle of repose. Lab trials using spheres similarly treated in a Mars dust environmental chamber confirm an angle  $>50^\circ$ .

Johnson J. B. Haldemann A. F. C. Hopkins M. A. Moore J. Peters J. Sullivan R. J. Athena Science Team

*Preliminary Report on the Development of Analysis Methods to Determine Mars Soil Mechanical Properties from Laboratory Tests, Discrete Particle Modeling, and Mars Trenching Experiments* [#1528]

Laboratory tests and discrete element methods (DEM) are being developed to determine soil mechanical properties from Mars Exploration Rover wheel trenching, Mössbauer contact plate indentation, and other soils tests. DEM simulations reduce uncertainties caused by test geometry.

Soderblom J. M. Bell J. F. III Johnson J. R. Maki J. N. Wolff M. J. Athena Science Team

*Photometry of the Martian Surface Using Data from the Navigation Cameras on the Mars Exploration Rovers Spirit and Opportunity* [#1935]

We model the broadband photometric properties of the surface materials at the Mars Exploration Rovers (MER) landing sites using data from the MER navigation cameras and a radiative transfer model based on that described by Hapke.

Landis G. A. Herkenhoff K. Greeley R. Thompson S. Whelley P. MER Athena Science Team

*Dust and Sand Deposition on the MER Solar Arrays as Viewed by the Microscopic Imager* [#1932]

To characterize atmospheric dust which has deposited on the deck of the Mars Exploration Rovers, we used the Microscopic Imager (MI) to examine the surface of the solar array.

Castano A. Fukunaga A. Castano R. Chien S. Greeley R. Whelley P. Neakrase L. Lemmon M.

*Feature Detection Onboard Mars Rovers: Automated Cloud and Dust Devil Detection* [#2059]

To improve the effectiveness of rover atmospheric imaging campaigns, we have developed an approach to screen images for the science features of interest (i.e., clouds and dust devils) onboard the rovers.

Crumpler L. S. McCoy T. Athena Science Team

*MER Surface Geologic Transect Mapping in the Plains and Hills, Gusev Crater* [#1685]

Sufficient traverse distance and outcrop characterization has occurred by the Spirit rover in the Gusev plains and Columbia Hills of Mars that "field maps" may now be prepared showing the distribution of the bedrock geology from surface observation along the entire traverse.

