

**Tuesday, March 13, 2007**

**POSTER SESSION I: MARS SEDIMENTS AND GEOCHEMISTRY: SPIRIT AND OPPORTUNITY  
6:30 p.m. Fitness Center**

Yingst R. A. Cabrol N. A. Crumpler L. S. Li R. Athena Science Team

*Quantitative Morphology of Clasts Along the Spirit Rover Traverse from Sol 450 to Sol 800* [#1105]

We report on a preliminary examination of quantitative morphologic characteristics of surface clasts in Gusev Crater imaged along the Spirit rover traverse from sols 450 to 800, to determine their nature and variance by location.

Cabrol N. A. Grin E. A. Herkenhoff K. Richter L. Athena Science Team

*Soil Sedimentology, Textures and Dynamics at Gusev Crater from Spirit's Microscopic Imager* [#1784]

Spirit MI images of undisturbed soils from landing to Sol 1035 were analyzed, including grain-size distribution, shape, texture, sorting, and morphology. Results can be used to better model past and present erosional and depositional activity relating to aeolian or aqueous processes.

Fleischer I. Klingelhöfer G. Schröder C. Rodionov D.

*Weathering Rinds on Gusev Crater Rocks: Simulation of 6.4 and 14.4 keV Backscatter Mössbauer Spectra and Implications on Depth Selectivity* [#1701]

Mössbauer backscattering spectra in 6.4 keV and 14.4 keV have been obtained from both Mars Exploration Rovers. Lab measurements and Monte Carlo simulations were done to investigate the depth selectivity of Mössbauer radiation.

Wang A. Bell J. F. III Li R.

*Salty Soils at Gusev Crater as Revealed by Mars Exploration Rover Spirit* [#1196]

Light-toned salty soils were exposed by Spirit rover wheels at eight locations within Columbia Hills, Gusev. Sulfates are the major components. Tyrone salty soils have a layered texture. The soils from deeper depth are demonstrating spectral changes following the time of exposure.

Farrand W. H. Bell J. F. III Johnson J. R. Blaney D. L.

*Multispectral Reflectance of Rocks in the Columbia Hills Examined by the Mars Exploration Rover Spirit: Cumberland Ridge to Home Plate* [#1957]

Visible and near infrared spectral properties of rocks observed by the Spirit rover's Pancam in its exploration of the Columbia Hills from Cumberland Ridge to Home Plate are described and their significance discussed.

Perl S. M. McLennan S. M. Grotzinger J. P. Herkenhoff K. E. Athena Science Team

*Volumes and Orientation of Secondary Porosity in the Burns Formation, Meridiani Planum, Mars* [#2226]

The purpose of this study is to quantify the volumes, sizes, and spatial orientations of secondary pores and evaluate the relationships they have with the classifications of porosity found on Mars.

Wdowiak T. J.

*Meridiani Planum Vugs as a Consequence of Ice Crystal Formation Followed by Thaw and Desiccation* [#1303]

The vugs observed at Eagle Crater have been interpreted previously as crystal molds of sulfate minerals then dissolved or eroded away. An alternative hypothesis is presented here describing the Meridiani Planum vugs as a consequence of ice crystal formation followed by thaw and desiccation.

Nahm A. L. Schultz R. A. Thompson S. D.

*Outcrop-Scale Properties of Burns Formation at Meridiani Planum, Mars* [#1976]

A rock mass rating (RMR) analysis was performed on an outcrop of Burns Formation located in Meridiani Planum, Mars. Physical parameters and RMR values increased from previous water-saturated values to their present-day dry values by several tens of percent.

Chapman M. G. Herkenhoff K. E. Galuszka D. M. Hare T. M. Rosiek M. R.  
*Thickness Estimate of Possible Eroded Overburden at Meridiani Planum from MER Opportunity  
MI Images* [#1411]

This study utilizes data from MI target B910Isabella and derived DEMs to estimate the intergranular volume and hence suggest possible thicknesses of overburden (overlying deposits) that may have been removed to generate this Meridiani surface.

Sullivan R. Anderson R. Biesiadecki J. Bond T. Stewart H.  
*Martian Regolith Cohesions and Angles of Internal Friction from Analysis of MER Wheel Trenches* [#2084]  
We report cohesions and angles of internal friction for regoliths trenched at several locations along the traverses of Spirit and Opportunity.

Tréguier E. d'Uston C. Gasnault O. Pinet P. Toplis M. J. Gellert R.  
*Investigating Geochemical Relationships Between Martian Soils and Rocks* [#1730]  
Principal component analysis of the chemical abundances of the Meridiani rocks and soils reveals that soils and rocks form two distinct families which converge toward a composition like the average Gusev soil, and present well identified end members.