

Tuesday, March 18, 2003
MARS 2003 ROVER AND SPECTRAL STUDIES
1:30 p.m. Salon B

Chairs: M. P. Golombek
A. Wang

Bishop J. L. * Drief A. Dyar M. D.

The Influence of Abrasion on Martian Dust Grains: Evidence from a Study of Antigorite Grains [#1512]
 Grinding was shown to greatly affect the structure and spectral properties of antigorite grains. This study provides an example of how aeolian abrasion could alter clays on Mars and may explain why OH bands are not prevalent in the dust spectra.

Farrand W. H. * Gaddis L. R.

Analysis of MGS TES Data over Acidalia Planitia and Cydonia Mensae: Compositional Evidence for Hydrovolcanic Activity? [#1601]
 MGS TES data, in combination with other MGS datasets, covering Acidalia and Cydonia were analyzed in a search for compositional evidence of water-magma interactions. One likely indicator of such interactions are high basaltic glass fractions in Acidalia.

Trautner R. * Chicarro A. C. Martin P. D.

Coordinated Science Operations of Mars Express Orbiter and Lander [#1634]
 The Mars Express orbiter and the Beagle2 lander carry a comprehensive set of instruments for the investigation of Mars. The orbiter and lander science operations will be coordinated in order to maximize the scientific output of the Mars Express mission.

Milam K. A. * Stockstill K. R. Moersch J. E. McSween H. Y. Jr. Tornabene L. L. Ghosh A.

Wyatt M. B. Christensen P. R.

THEMIS Characterization of the MER Gusev Crater Landing Site [#1061]
 This study uses newly acquired THEMIS visible and TIR data, along with TES, MOC, and MOLA data to examine the geologic setting of Gusev crater, a MER-a candidate landing site.

Golombek M. * Grant J. Parker T. Kass D. Crisp J. Squyres S. Carr M. Adler M. Zurek R.

Haldemann A. Arvidson R. Weitz C.

Selection of the Final Four Landing Sites for the Mars Exploration Rovers [#1754]
 The final four potential MER landing sites have been selected from six sites evaluated in detail and a safe, low-wind site in Elysium. The highest priority science sites are Meridiani and Gusev; the safest sites appear to be Meridiani and Elysium.

Greenhagen B. T. * Kirkland L. E. Herr K. C.

Mars Analogue Field Spectroscopy: Building Real-World Experience for the Mars 2003 Rover Mini-TES [#1844]

Our field spectrometers measure with the highest fidelity to the Mini-TES of any field instrumentation available. We will report critical lessons from field experience, and implications for Mini-TES interpretations and sources of uncertainties.

Deal K. S. Arvidson R. E. Jolliff B. L.

Remote Mapping of the Ka'u Desert, Hawai'i: Silica in a Mars Analog Terrain [#1952]

Analyses of Mars analog materials in the Ka'u Desert, Hawai'i, has revealed amorphous silica to be the primary component of lava flow surface coatings, duricrust cements, and solfatara incrustations.

Dyar M. D. * Schaefer M. W.

Mössbauer Spectroscopy on the Martian Surface: Constraints on Interpretation of MER Data [#1329]

MER Mössbauer spectrometers have the exciting potential to identify and quantify relative amounts of Fe-bearing minerals, but interpretation of these results has limitations. Spectral non-uniqueness, temperature dependence, recoil-free fraction effects, and particle size must all be considered.

Schaefer M. W. * Dyar M. D.

Mössbauer Spectroscopy on the Martian Surface: Predictions [#1381]

Mössbauer spectrometers will be used on upcoming Mars landers to identify and quantify relative amounts of iron-bearing minerals. To interpret these data, we must understand the Mössbauer parameters of minerals that we might expect to find on Mars. We present a discussion of such minerals.

Milliken R. E. * Mustard J. F.

Observations and Modeling of the Adsorbed Water in Montmorillonite with Reflectance Spectroscopy [#1345]

Loss of adsorbed H₂O in reflectance spectra of montmorillonite is modeled as a function of scattering (QS) and absorption (QA) efficiencies of H₂O. This method is capable of detecting and modeling changes in reflectance spectra due to small changes (<0.1 wt.%) of adsorbed H₂O.

Dalton J. B. * Bishop J. L.

Micro-Spectroscopy as a Tool for Detecting Micron-scale Mineral Variations Across a Rock Surface:

An Example Using a Thin Section of Martian Meteorite ALH 84001 [#2066]

Visible and near-infrared spectra of a portion of martian meteorite ALH84001 were acquired using a high resolution imaging microscope to investigate imaging spectroscopy for mineral detection at small scales.

Cord A. M. * Pinet P. C. Daydou Y. Chevrel S.

Experimental Determination of the Hapke Shadowing Function Parameter for Planetary Regolith Surface Analogs [#1349]

This work presents a method for a determination of the global set of parameters involved in Hapke's model for planetary surface analogs. We focus on the physical meaning of the shadowing function parameter.

Putzig N. E. * Mellon M. T. Arvidson R. E. Kretke K. A.

Thermal Inertia Analysis of the Martian Globe, South Polar Region, and Past Landing Sites [#1429]

We present new results from analysis of MGS-TES thermal inertia. A new unit of low thermal inertia and albedo dominates the south polar region. Past landing site data constrains our interpretation of thermal surface units.