

Tuesday, March 16, 2004

**POSTER SESSION I: MARS: NEW METHODS AND TECHNIQUES**  
7:00 p.m. Fitness Center

Castano A. Anderson R. C. Castaño R. Estlin T. Judd M.

*Intensity-based Rock Detection for Acquiring Onboard Rover Science* [#2015]

The Onboard Autonomous Science Investigation System (OASIS) is a technology for increasing science return during rover traverses by prioritizing data onboard. We describe the role and functionality of the rock detector in the OASIS system.

Gilmore M. S. Merrill M. D. Castaño R. Bornstein B. Greenwood J.

*Effect of Palagonite Dust Deposition on the Automated Detection of Carbonate Vis/NIR Spectra* [#1335]

Our artificial neural network carbonate detector can correctly recognize carbonate spectra under palagonite dust layers of up to ~100  $\mu\text{m}$ .

Farrand W. Merenyi E. Murchie S. Barnouin-Jha O. Johnson J.

*Mapping Rock and Soil Units in the MPF SuperPan Using a Kohonen Self Organizing Map* [#1916]

The Imager for Mars Pathfinder (IMP) SuperPan was reanalyzed using a Kohonen self organizing map program. Results reveal additional examples of the black rock class and indications of layering on Twin Peaks.

Plesko C. Brumby S. Asphaug E. Chamberlain D. Engel T.

*Automatic Crater Counts on Mars* [#1935]

We present results of an automated crater counting technique for THEMIS data. Algorithms were developed using GENIE machine learning software. The technique detects craters, generalizes well to new data, and is used to rapidly produce R-plots and statistical data.

Archinal B. A. Weller L. Sides S. Cushing G. Kirk R. L. Soderblom L. A. Duxbury T. C.

*Preparing for Themis Controlled Global Mars Mosaics* [#1903]

We describe our investigation of geometric issues related to making regional or global controlled THEMIS infrared and visible mosaics of Mars. Issues considered include pointing accuracy, automatic tiepointing, and control of line-scanner images.

Vilalta R. Stepinski T. F.

*Thematic Maps of Martian Topography Generated by a Clustering Algorithm* [#1169]

A method for autonomous construction of thematic maps of Martian terrain from digital topography is presented. These maps are generated by an algorithm that classifies pixels in a DEM. We show a thematic map of Tisia Valles region on Mars.

Kirk R. L. Howington-Kraus E. Hare T. M. Soricone R. Ross K. Weller L. Rosiek M. Redding B. Galuszka D. Archinal B. A. Haldemann A. F. C.

*High-Resolution Topomapping of Mars: Life After MER Site Selection* [#2046]

Our use of MOC-NA images to make 3 to 10 m resolution topomodels continues. To map outside landing sites, we have made a global GIS database of possible pairs and visually identified nearly 800 useful pairs planetwide.

Tanaka K. L. Crumpler L. A. Dohm J. M. Hare T. M. Skinner J. A. Jr.

*Assessing Photogeologic Mapping Techniques in Reconstructing the Geologic History of Mars* [#2109]

Blind tests performed by geologists experienced in both Mars photogeologic and terrestrial field mapping are being used to assess the accuracy of geologic history reconstructions made on Mars and compare the effectiveness of various mapping approaches.

Ori G. G. Flamini E. Rossi A. P. Di Lorenzo S. Lorenzoni L. V. Marinangeli L. Di Iorio A.

*Mars Express Planetary Geoscience Information System (MEGIS) Project* [#1472]

The Mars Express Geosciences Information System (MEGIS) is a pilot project to develop a planetary geoscience data archive for Mars in the framework of the Mars Express mission.