

Thursday, March 26, 2009

**POSTER SESSION II: MARS: GEOLOGIC MAPPING, PHOTOGRAMMETRY, AND CRATERING  
6:30 p.m. Town Center Exhibit Area**

Tanaka K. L. Dohm J. M. Irwin R. Kolb E. J. Skinner J. A. Jr. Hare T. M.

[\*Progress in Global Geologic Mapping of Mars\*](#) [#1975]

We describe new and updated aspects of our Mars global geologic mapping effort, including use of data sets, mapping approaches and progress, current issues, and future work.

Mest S. C. Crown D. A.

[\*Geologic Mapping of MTM-30247, -35247 and -40247 Quadrangles, Reull Vallis Region of Mars\*](#) [#1930]

Geologic mapping of MTMs -30247, -35247, and -40247 characterizes the upper reaches of Reull Vallis, located in the eastern Hellas region of Mars. Crater size-frequency distributions will be generated for mapped units using high-resolution images.

Crown D. A. Bleamaster L. F. III Mest S. C. Mustard J. F.

[\*Geologic Mapping of the NW Rim of Hellas Basin, Mars\*](#) [#1705]

Geologic mapping of the NW rim of Hellas basin is providing new constraints on the magnitudes, extents, and history of volatile-driven processes as well as a geologic context for mineralogic identifications.

Philippoff A. J. Tornabene L. L. McEwen A. S. Baker V. R. Melosh H. J.

Berman D. C. HiRISE Science Team

[\*Geomorphologic Mapping of Hale Crater, Mars\*](#) [#1737]

Presented here is a geomorphologic map of Hale Crater that highlights the channels found within and emanating from Hale's ejecta blanket and the implications they may have for the early climate and landscape evolution of Mars.

Griffin L. J. Zimbelman J. R.

[\*Geologic Mapping of Western Medusae Fossae Formation, Mars \(MC 23-NW\): Redefining Unit Boundaries and Features to Reveal a History of Tectonism, Wind Erosion, and Episodic Water Flow\*](#) [#1196]

Mapping has revealed substantial patches of layered materials that are interpreted to be outliers of Medusae Fossae Formation (MFF) materials. Eroded MFF materials show evidence suggesting localized folding, plus exhumed fluvial features.

Skinner J. A. Jr. Ferguson R. L. Tanaka K. L.

[\*Occurrence and Origin of Lobate Materials in the Highland-Lowland Boundary of Southern Utopia Planitia, Mars\*](#) [#2459]

The southern Utopia HLB has been interpreted as colluvial sequences associated with HLB scarp erosion. We re-examine these interpretations and present evidence for the existence of extensive flow-related geologic processes.

Pina P. Antunes J. Bandeira L. Saraiva J.

[\*Analyzing the Large Extension of Polygonal Terrain in the Northern Plains of Mars\*](#) [#2035]

This work describes a plan for the automated analysis of the large extension of terrain covered by polygonal networks on the northern plains of Mars.

Dumke A. Spiegel M. van Gasselt S. Neukum G.

[\*Valles Marineris, Mars: High-Resolution Digital Terrain Model on the Basis of Mars-Express HRSC Data\*](#) [#1985]

High resolution digital terrain models (DTM) are necessary for geoscientific studies of Mars. To get a more comprehensive view of regional processes on Mars, images as well as topographic data have to be mosaicked photogrammetrically.

Chen Y. Hwangbo J. W. Li R.

[Photogrammetric Processing of High-Resolution Planetary Orbital Imagery for Large-Area Topographic Mapping](#) [#2129]

A photogrammetric method to process HiRISE stereo images is described. This bundle adjustment based method removes inconsistencies between different HiRISE images covering the same area to generate topographic products of the best quality.

Li R. Chen Y. He S. Yang L. Tang M. MER Science Team

[Rover Localization: Comparison between Bundle Adjustment-based and HiRISE Orbital Image-based Methods](#) [#2208]

A bundle adjustment-based rover localization method has been developed. Rover positions are also estimated by matching a ground image orthophoto to a HiRISE orthophoto. We estimated the differences in traverse positions between the two methods.

Daubar I. J. McEwen A. S.

[Depth to Diameter Ratios of Recent Primary Impact Craters on Mars](#) [#2419]

Very recent small martian primary craters confirmed by HiRISE have a depth/diameter ratio of  $\sim 0.26$ , close to expected for primaries and significantly higher than that measured for secondaries or many small fresh craters of unknown origin.

Barlow N. G.

[Martian Central Pit Craters: Summary of Northern Hemisphere Results](#) [#1915]

We have completed our survey of central pit craters in the northern hemisphere of Mars. We present results on the characteristics and distributions of these central pit craters.

DeVries R. J. Barlow N. G.

[Central Pit Craters in the Southern Hemisphere of Mars](#) [#1929]

We are conducting a survey of the characteristics and distributions of central pit craters in the southern hemisphere of Mars. We present the early results of this study.

Bray V. J. Tornabene L. L. McEwen A. S. Mattson S. S.

[Measurement of Small-Scale Pits in the Corinto Crater, Mars](#) [#1389]

HiRISE imagery has revealed small-scale pits in fresh martian impact craters. We are collecting measurement of pit dimensions in the Corinto crater, so that the possible relation of pit-concentration and terrain subsidence can be quantified.

Komatsu G. de Pablo M. A. Ormö J. Tornabene L. L.

[Small Craters from Oblique Impacts and the Origin of an Unusual Streak in Elysium Planitia, Mars](#) [#1779]

We present a HiRISE image revealing details of small craters (<100 m) that are probably secondaries formed by oblique impacts. We also discuss working hypotheses for the formation mechanisms of the light-toned streak associated with one of them.

Wyant M. A. Frey H. V. Davatzes A. K.

[Relative Age Dating of Martian Geologic Units Through a Study of Buried Impact Structures Using an Improved Crustal Thickness Model](#) [#1767]

The improved crustal thickness model for Mars allows for the identification of buried impact structures at greater resolution. Using this model we can look at individual regions of the planet and discern relationships between the units relative ages.