

Tuesday, March 20, 2012
POSTER SESSION I: MARS GEOMORPHOLOGY: MAPPING
6:00 p.m. Town Center Exhibit Area

Audouard J. Poulet F. Vincendon M. Bibring J.-P. Gondet B. Langevin Y.

[Remote Sensing of the Thermophysical Properties of the Martian Surface with Visible and Near-Infrared Orbital Measurements](#) [#2125]

We present the first study of the thermophysical properties of the martian surface using the OMEGA dataset. The elliptical orbit of Mars Express yields a novel sampling of the thermal cycles, different from TES and THEMIS heliosynchronous datasets.

Bandfield J. L. Edwards C. S. Brand B. D. Montgomery D. R.

[The Physical Nature of the Upper Martian Crust](#) [#1483]

The pre-Hesperian martian crust is typically composed of poorly consolidated, particulate materials. Material akin to what might be derived from lava flows is much less substantial but appears to have become more common later in martian history.

Jasiewicz J. Stepinski T. F.

[Global Geomorphometric Map of Mars](#) [#1347]

A global geomorphometric map of Mars is generated from DEM using a novel computer algorithm. This map provides a new valuable tool for terrain analysis and objective quantification of surface units. Auto-mapping of surface units is a future application.

Coles K. S. Tanaka K. L. Christensen P. R. Dohm J. M. Fortezzo C. M. Skinner J. A. Jr.
 Hare T. M. Blue J. S.

[A New Atlas of Mars](#) [#2530]

A new atlas of Mars includes base maps created from merged, multiple datasets, global views of geology and composition, and features of interest in each region.

Crown D. A. Berman D. C.

[Geologic Mapping of MTM-35137 Quadrangle: Daedalia Planum Region of Mars](#) [#2055]

Geologic mapping in the SW Daedalia Planum region of Mars reveals an extensive history of volcanism. The most recent phase in the Middle Amazonian Epoch emplaced vast sheet flows that exhibit evidence for flow inflation along their margins.

Crown D. A. Ramsey M. S. Berman D. C.

[Morphologic and Chronologic Studies of Lava Flow Fields in the Southern Tharsis Region of Mars](#) [#2138]

The current investigation examines styles and sequences of volcanism in southern Tharsis, Mars. Geologic and flow field mapping reveal changes in flow morphology and age from south of Arsia Mons to the southern extent of Daedalia Planum.

Mouginis-Mark P. J.

[A New 1:200,000-Scale Geologic Map of Tooting Crater, Mars](#) [#1562]

A geologic map of Tooting Crater, Mars, is presented. This 27-km-diameter crater is very young (<3 m.y.) and displays numerous landforms (impact melt, four ejecta layers, water release from walls) that might also have existed at older craters on Mars.

Tanaka K. L. Dohm J. M. Fortezzo C. M. Irwin R. P. Kolb E. J. Skinner J. A. Jr. Hare T. M.
 Platz T. Michael G. Robbins S.

[The Geology of Mars: What the New Global Map Shows](#) [#2702]

We describe how post-Viking data sets and our comprehensive, digital, team-based mapping approach have resulted in more robust unit identification, stratigraphic analysis, and understanding of geologic materials and features on Mars.

Tanaka K. L. Rodriguez J. A. P. Fortezzo C. M. Platz T. Michael G. Robbins S.

[Geologic History of Valles Marineris, Mars, Revisited](#) [#2821]

Geologic mapping and other investigations using post-Viking image and topographic data reveal some fundamental new insights regarding the geologic history of Valles Marineris.

Ismailos C. Fueten F. Stesky R. Flahaut J. Rossi A. Hauber E.

[Layer Thickness Determination of the Interior Layered Deposit within Ganges Chasma, Mars](#) [#1533]

Layer thicknesses measured over 3 km of stratigraphy on the large ILD within Ganges Chasma indicate that layering is on average 1.26 m thick. These layer thickness measurements are less than similar measurements made on layers in Candor Mensa.

Guallini L. Gilmore M. S. Marinangeli L.

[Geologic and Geomorphologic Map of Iani Chaos \(Mars\)](#) [#1410]

We present the first high-resolution geologic and geomorphologic map of Iani Chaos. Chaotic, LLD, and fluvial units have been defined. Ares Vallis outflow systems erode LLD and control their elevation. The deposition of LLD was coeval to chaos formation.

Stoddard Crile M. B. Howard D. A.

[Geographic Survey of Martian Chaotic Terrain](#) [#2340]

GIS analysis evaluates spatial correlations between chaos sites on Mars and associated occurrence properties. These sites are examined from a broad perspective, to determine if there are global trends in the occurrences of chaotic terrain.

Platz T. Michael G. G. Skinner J. A. Tanaka K. L. Kneissl T. Fortezzo C. M.

[Absolute Age Determinations for Regional Geologic Units: A Case Study of the Middle Noachian Unit in the Arabia-Sabaea-Noachis Terrae Region, Mars](#) [#2686]

This study shows how well-selected type locations of regional geologic units can be used for detailed crater counts to derive representative unit model ages.

Dohm J. M. Robbins S. J. Hynek B. M.

[Recent Geological and Hydrological Activity in Amazonis and Elysium Basins and Their Link, Marte Vallis \(AME\): Prime Target for Future Reconnaissance](#) [#1948]

Amazonis and Elysium basins and their link, Marte Vallis (AME), uniquely point to a geologically and hydrologically active Mars. We will present evidence for why AME reconnaissance can help address whether Mars is geologically, hydrologically, and biologically active.

Golder K. B. Gilmore M. S.

[Geomorphological Mapping of Eastern Eridania Basin and Associated Subbasins, Mars](#) [#2661]

We performed a geomorphological analysis of the eastern Eridania region using contemporary image data to create a new geologic map at ~1:1.4 M scale to determine the timing of the sequence of events within the basin.

Signorella J. D. de Wet A. P. Bleacher J. E. Collins A. Schierl Z. P. Schwans B.

[Volcanic or Fluvial Channels on Ascræus Mons: Focus on the Source Area of Sinuous Channels on the Southeast Rift Apron](#) [#2773]

This study focuses on the source area of sinuous channels on the southeast rift apron on Ascræus Mons, Mars and attempts to understand whether the channels were formed through volcanic or fluvial processes.

Kostama V. -P. Ivanov M. A. Rauhala A. I. Törmänen T. Korteniemi J. Raitala J.

[Martian Volcanic and Sedimentary Layer Study: Morphologic and Morphometric Criteria for Different Origins](#) [#1843]

Layers exposed in volcanic and sedimentary key sites were used as a foundation for morphologic and morphometric identification criteria. Criteria were used for several test sites and results compared to determine the origin of the observed layering.

Voelker M. Platz T. Tanaka K. L. Fortezzo C. M. Ferguson R. L. Hare T. M.
[Geological Mapping of Havel Vallis, Xanthe Terra, Mars: Stratigraphy and Reconstruction of Valley Formation](#) [#2738]

Havel Vallis is related to the formation of Juventae and Baetis chaoses and the Maja Valles systems. We present the first geological map of Havel Vallis by characterising its deposits.

Bleamaster L. F. III Chuang F. C. Crown D. A.
[Geologic Mapping of Locations Formerly Known as MSL Landing Sites: Nili Fossae and Mawrth Vallis, Mars](#) [#1478]

Geologic mapping at 1:1-million-scale of Nili Fossae and Mawrth Vallis is being used to assess geologic materials (including a variety of mineral detections) and processes that shape the highlands along the Arabia Terra dichotomy boundary.

Korteniemi J. Kukkonen S. Kostama V.-P.
[Morphology and Ages of Units on the Floor of Dao Vallis Head, Mars: Preliminary Results](#) [#2034]

Preliminary results of CTX/HiRISE scale geologic mapping and age estimates on the various floor units of Dao Vallis head, Mars. We have identified a complex and distinct feature set from an area previously considered as a single unit.

Zimbelman J. R. Scheidt S. P.
[Crater Retention Ages Indicate a Hesperian Age for Western and Central Portions of the Medusae Fossae Formation, Mars](#) [#2052]

Impact craters were counted on the THEMIS IR base map for MFF map units. Results suggest that units from both the lower and middle members of MFF were emplaced during the Hesperian rather than the Amazonian.

Capitan R. D. Osinski G. R. Van De Wiel M. J. Kerrigan M. Barry N. Blain S.
[Mapping Utopia Planitia: Morphometric and Geomorphologic Mapping at a Regional Scale](#) [#2237]

A new mapping concept based on elevation datasets and imagery visualization is applied to regional surfaces on Mars, in Utopia Planitia.

Dohm J. M. Kargel J. S.
[Geologic Mapping Investigation of the Argyre and Surrounding Regions of Mars](#) [#2468]

A post-Viking-era geologic mapping investigation of the Argyre impact basin and surroundings at 1:5,000,000 scale is ongoing to address important questions concerning the impact event and its subsequent influence on the geology and hydrology of the region.

El Maarry M. R. Thomas N. Pommerol A.
[Banded Terrain and Associated Geology at the NW of Hellas Basin, Mars](#) [#2653]

We describe and map a peculiar formation we call the "banded terrain" that is located in the NW part of Hellas Basin, Mars, as well as the associated geological units to investigate the possible formation mechanisms of this unit.

Fortezzo C. M. Skinner J. A. Jr.
[Geologic Evolution of the Runanga-Jorn Basin, Northeast Hellas, Mars](#) [#2681]

The Runanga-Jorn Basin provides insight into the evolution of the northeast Hellas Basin rim region. This development includes megaregolith, volcanic deposits, and stratified sediments with preserved vertical and lateral channel cross sections.