Wednesday, March 19, 2014
MARS GEOMORPHOLOGY AS AFFECTED BY AQUEOUS PROCESSES
OVER THE HISTORY OF MARS
1:30 p.m. Waterway Ballroom 4

Chairs: Carlton Allen
William Dietrich

1:30 p.m. Jaumann R. * Neukum G. Tirsch D. Hauber E. Hoffmann H. et al.
The Martian Geomorphology as Mapped by the Mars Express High Resolution Stereo Camera
(HRSC): Implications for Geological Processes and Climate Conditions [#1772]
After 10 years of orbiting the planet, HRSC on Mars Express has covered about 90% of the surface in
stereo and color with resolutions up to 10 m/pixel.

1:45 p.m. Irwin R. P. III * Tanaka K. L. Robbins S. J.
Noachian Resurfacing in the Martian Highlands: Analysis of a New Global Geologic Map and
Crater Database [#2685]
Analysis of the new global geologic map of Mars and impact crater database indicate spatially
nonuniform Noachian resurfacing by gravity-driven processes.

2:00 p.m. Head J. W. III * Wordsworth R. Forget F. Madeleine J.-B. Halevy I.
Late Noachian “Cold and Icy Highlands” Model: Geological Predictions for Equilibrium
Environments and Equilibrium/Non-Equilibrium Melting Scenarios [#1412]
We test the Late Noachian icy highlands model exploring predictions for geologic settings/cryospheric
processes in equilibrium/nonequilibrium climate states.

2:15 p.m. Bennett K. A. * Bell J. F. III
A Global Survey of Central Mounds in Large Martian Craters: Implications for Paleolakes [#1539]
We present our global survey of central mounds as well as mound and crater rim heights that have
implications for mound formation from lacustrine settling.

2:30 p.m. Allen C. C. * Dapremont A. M. Oehler D. Z.
The Complex, Multi-Stage History of Mt. Sharp [#1402]
Mt. Sharp was formed in two phases of deposition and erosion, separated by a significant time gap.
Location and morphology were influenced by a peak ring.

2:45 p.m. Dietrich W. E. Palucis M. C. Parker T. Rubin D. de Pablo M. A. et al.
Looking Towards Curiosity’s Canyon Path: A 4 km Sequence of Gully, Debris Deposits, and
Fan/Deltas which are Bordered by a Sloping Bedform-Capped Plain and Crossed by
Lake Shorelines [#1684]
Curiosity’s canyon path includes a gully, debris deposits, and fan/deltas that are bordered by a sloping
bedform-capped plain and crossed by lake shorelines.

3:00 p.m. Kite E. S. Lucas A. Armstrong J. C. Aharonson O. Lamb M. P.
Resolving the Great Drying of Mars: Paleo-Climate Versus Time from River Deposits in
Aeolis Dorsa [#2638]
River-channel dimensions in Aeolis Dorsa suggest a threefold reduction in peak runoff production
during the ≳ (1–20)-m.y. interval of deposition.

3:15 p.m. Hauber E. Adeli S. Le Deit L. Kleinhans M. G.
Outflow Channels and Associated Fan Deltas: Post-Noachian Fluvial Diversity in the
Southern Highlands of Mars [#2021]
A series of channels in the southern highlands of Mars resemble outflow channels en miniature, and
represent a rich post-Noachian record of aqueous activity.
3:30 p.m.  Harrison T. N. *   Osinski G. R.   Tornabene L. L.
Global Documentation of Gullies with the Mars Reconnaissance Orbiter Context Camera (CTX) and Implications for Their Formation [#2124]
We inspected CTX images planet-wide from T01–D09 to document the locations of gullies in an attempt to constrain their possible formation mechanism(s).

3:45 p.m.  Conway S. J. *   Balme M. R.   Murray J. B.   Towner M. C.
A Signal for Water on Mars: The Comparison of Topographic Long Profiles of Gullies on Earth to Gullies on Mars [#2438]
We compare topographic long profiles of fluvial and debris flow gullies on Earth to those on Mars. Martian gullies are similar to both terrestrial gully-types.

4:00 p.m.  Auld K. S. *   Dixon J. C.
Classification of Martian Gullies from HiRISE Imagery [#1270]
HiRISE imagery and was used to develop a classification of gully types based on the morphological components of gullies. Classes are developed and maps created.

4:15 p.m.  Dickson J. L.   Head J. W.   Barbieri L.   Goudge T. A.
Evolution of the Latitude Dependent Mantle on Mars: Thickness Estimates and Evidence for Cyclical Emplacement as Revealed by Late Amazonian Gullies [#1680]
Multiple episodes of gully activity allow for the first measurements of minimum latitude dependent mantle thickness using HiRISE stereo DEMs.

4:30 p.m.  Watkins J. *   Ojha L.   Chojnacki M.   Reith R.   Yin A.
Structurally Controlled Subsurface Fluid Flow as a Mechanism for the Formation of Recurring Slope Lineae [#2911]
A fault-controlled brine flow hypothesis, in which structural inhomogeneities act as conduits for subsurface fluid migration, is tested for RSL formation.