

Tuesday, March 13, 2007
MARS FLUVIAL GEOMORPHOLOGY
1:30 p.m. Marina Plaza Ballroom

Chairs: V. C. Gulick
 K. P. Harrison

- 1:30 p.m. Gulick V. C. * McEwen A. S.
Early HiRISE Observations of Fluvial and Hydrothermal Features [#2300]
 Fluvial and hydrothermal features are a key target for the HiRISE camera. Here we summarize some of the highlights of the early HiRISE imaging of fluvial features, paying special attention to the many spectacular images of gullies already obtained by the camera.
- 1:45 p.m. Ansan V. Mangold N. * Masson Ph. Neukum G. HRSC Team
Topography of Valley Networks on Mars: Comparison Between MOLA and HRSC DTM [#1660]
 DTMs calculated from HRSC stereoscopic images of the MEx mission are used to derive automatically valley networks geometry at spatial sampling reaching 30 m. These results are compared to MOLA (at 1/128° grid) using the same software and to the geomorphic mapping over two regions of Mars.
- 2:00 p.m. Barnhart C. J. * Howard A. D. Moore J. M.
Characteristics and Model Simulations of Fluvial Incision in Parana Basin [#1459]
 Geomorphic data from Parana Basin are compared with simulated models to evaluate the contrast in erosional style between widespread, less channelized mid-Noachian erosion and limited, yet focused erosion during the Noachian-Hesperian transition.
- 2:15 p.m. Luo W. * Howard A. D.
Computer Simulation of Groundwater Seepage Weathering in Forming Martian Valley Networks [#1633]
 We simulate the role of emerging groundwater in forming valley networks (VN) as seepage weathering. The model allows us to examine the relative importance of surface water vs. groundwater in VN formation.
- 2:30 p.m. Burr D. M. *
Comparative Sediment Transport by Flowing Liquid on Earth, Mars, and Titan: Synthesis of Theory and Observations [#2222]
 One-dimensional modeling of sediment transport by flowing liquid is compared with published observations for Mars and Titan. Conclusions include the relative unlikelihood of water-lain depositional bedforms on Mars and a predicted absence of fluvial organic sedimentary bedforms on Titan.
- 2:45 p.m. Howard A. D. * Moore J. M. Irwin R. P. III Dietrich W. E.
Boulder Transport Across the Eberswalde Delta [#1168]
 Meter-scale boulders on the surface of Eberswalde Delta, Mars could have been transported by ordinary fluvial flows because of ease of boulder transport on a strongly bimodal bed. Boulders were probably derived from the canyon just upstream of the delta.
- 3:00 p.m. Kolb K. J. * McEwen A. S. Gulick V. C. HiRISE Team
Gullies Potentially Formed by Water from the Subsurface [#1391]
 A HiRISE image shows gullies emanating from a layer that cuts into a mound. We propose that this layer may have conducted water to the surface to form the gullies.
- 3:15 p.m. Ollila A. M. * Gilmore M. S.
Thermophysical Properties of Gullied and Non-Gullied Slopes in Acidalia Planitia, Mars [#1861]
 Temperatures of gullied and non-gullied slopes from THEMIS data will be presented.

- 3:30 p.m. Head J. W. III* Marchant D. R. Dickson J. L. Levy J. S. Morgan G. A.
Slope Streaks in the Antarctic Dry Valleys: Characteristics, Candidate Formation Mechanisms, and Implications for Slope Streak Formation in the Martian Environment [#1935]
Mars slope streaks are thought to have formed by dry dust avalanches; slope streaks in the Mars-like ADV form by melting of surface/shallow subsurface snow/ice, meltwater migration along the top of the ice table, and wicking to form surface wetting.
- 3:45 p.m. Levy J. S. * Head J. W. III Marchant D. R. Morgan G. A. Dickson J. L.
Gully Surface and Shallow Subsurface Structure in the South Fork of Wright Valley, Antarctic Dry Valleys: Implications for Gully Activity on Mars [#1728]
Gully analogs (Antarctic Dry Valleys) show that top-down melting of trapped windblown snow is a major water source; meltwater soaks into the hyporheic zone and travels along the top of the ice table, providing insight into the origin of Mars gullies.
- 4:00 p.m. Goldspiel J. M. * Squyres S. W.
Groundwater Discharge and the Formation of Gullies on Walls of Martian Craters [#1598]
A new study is underway to investigate the details of groundwater discharge along the surface of a crater wall. The numerical model accounts for the effects of a sloped sapping face, solar exposure azimuth, surface-atmosphere interactions, and the thermal and physical effects of ice formation.
- 4:15 p.m. Harrison K. P. * Grimm R. E.
Multiple Flooding Events in Martian Outflow Channels: Quantitative Considerations [#1375]
Martian outflow channels were likely formed by multiple erosive flooding events. We investigate the number and duration of events required, and the implications for possible delivery mechanisms.
- 4:30 p.m. Di Achille G. * Ori G. G. Reiss D.
New Insights into the Hydrology of the Shalbatana Outflow Channel, Mars: Terminal Impoundment and Intravalley Lacustrine Activity [#1266]
The hydrology of Shalabatana Vallis indicates terminal impoundment and lacustrine activity along its course. We present evidence for shorelines and fan-deltas suggesting the occurrence of a paleolake along the valley during the Late Hesperian.