

**Thursday, March 13, 2008**  
**MARS AEOLIAN PROCESSES AND GULLY FORMATION MECHANISMS**  
**8:30 a.m. Crystal Ballroom A**

**Chairs: J. M. Soderblom**  
**K. J. Kolb**

- 8:30 a.m. Fenton L. K. \* Michaels T. I.  
*Characterizing Daytime Erosion Potential on Mars Using the MRAMS LES* [#1964]  
 We present preliminary results of large eddy simulations of the Viking Lander 1 and Phoenix landing sites, demonstrating that convective activity (“gustiness”) both enhances modeled dust entrainment and differs in intensity at the two landing sites.
- 8:45 a.m. Geissler P. E. \* Johnson J. R. Sullivan R. Herkenhoff K. E. Mittlefehldt D. W. Weitz C. M. Ferguson R. Rogers D. Ming D. W. Morris R. Squyres S. W. Soderblom L. A. Golombek M. MER Athena Science Team  
*First In-Situ Investigation of a Dark Wind Streak on Mars* [#2286]  
 Prominent wind streaks issue from embayments at the north end of Victoria Crater in Meridiani Planum. The MER rover Opportunity was sent to examine the darkest of these streaks and compare it to the adjacent soil in the corridor between the streaks.
- 9:00 a.m. Sullivan R. \* Arvidson R. E. Bell J. F. III Golombek M. Guinness E. A. Greeley R. Herkenhoff K. E. Johnson J. R. Squyres S. W. Thompson S. Whelley P. Wray J.  
*Wind-driven Particle Mobility on Mars: Insights from MER Observations at “El Dorado” and Surroundings at Gusev Crater* [#2092]  
 Spirit observations indicate: (1) smaller TARs seen across Mars likely are coarse-grained ripples; (2) pervasive induration of sandy regolith, and dust occurring as easily-entrained aggregates, explain disparity between mobilization of sand vs. dust.
- 9:15 a.m. Bridges N. T. \* Gorbaty E. Beyer R. A. Byrne S. Thomson B. J. Wray J. HiRISE Team  
*Low Thermal Inertia and High Elevation Bedforms as Seen by the HiRISE Camera* [#2108]  
 Much of the low thermal inertia mantle is organized into small “reticulate” bedforms, consistent with saltated sand. Some yardangs have a texture similar to the reticulate forms, suggesting cementation over time.
- 9:30 a.m. Silvestro S. \* Fenton L. K. Ori G. G.  
*Complex Dunes in the Southern Hemisphere of Mars: Age and Wind Regimes* [#1893]  
 A complex dune inside a crater in the eastern part of Thaumasia region is identified. Shape and position of this bedform corresponds with the wind regime predicted by the GCM. This suggests that this bedform formed in present day atmospheric conditions.
- 9:45 a.m. Neakrase L. D. V. \* Greeley R.  
*Laboratory Studies of Dust Devil Sediment Flux: Comparing with Data from Gusev Crater, Mars* [#1191]  
 Laboratory studies of dust devil sediment flux compare effects of non-erodible surface roughness elements on the transport of material to flux estimates from natural dust devils on Earth and Mars.
- 10:00 a.m. Dickson J. L. \* Head J. W. III  
*Global Synthesis of Mars Gully Observations: Evidence for Climate-Controlled Formation from Morphology, Distribution, Topography, and Terrestrial Analogs* [#1181]  
 We synthesize the observations of gullies on Mars with terrestrial analogs and outline the necessary conditions for gully formation in the recent history of Mars.

- 10:15 a.m. Coleman K. A. \* Dixon J. C. Howe K. L. Rowe L. A. Chevrier V. F.  
*Simulation of Martian Gullies Using a Water/Ice Slush* [#2240]  
Simulations using a water/ice slush produced gully forms with three parts resembling gullies observed on the martian surface. Gully length/width ratios for simulations were similar to length/width ratios measured in MOC and MRO images of Mars.
- 10:30 a.m. Parsons R. A. \* Kreslavsky M. A. Nimmo F.  
*Martian Gully Slope Measurements made Using HiRISE Stereo Pairs* [#2328]  
We present gully slope data measured using stereo pairs of HiRISE images. Topographic profiles of nine gullies presented in this study show a continuous decrease in slope from gully alcove ( $29^\circ$  average) to the depositional apron ( $17^\circ$ ).
- 10:45 a.m. Kolb K. J. \* Aharonson O. Pelletier J. D. McEwen A. S. HiRISE Science Team  
*Modeling Bright Gully Deposits' Formation in Hale Crater* [#2114]  
We model recent bright gully deposits to distinguish between debris flows and fluid carrying sediment as the likely formation agents.
- 11:00 a.m. Beyer R. A. \* Chuang F. C. Thomson B. J. Milazzo M. P. Wray J.  
*Martian Slope Streak Brightening Mechanisms* [#2538]  
Two hypotheses are presented for the origin of bright slope streaks, neither of which requires a bright albedo material, and allows for brightening as a natural part of dark slope streak modification.
- 11:15 a.m. Heldmann J. L. \* Conley C. Brown A. J. Fletcher L. Bishop J. L. McKay C. P.  
*Atacama Desert Mudflow as an Analog for Recent Gully Activity on Mars* [#2214]  
We discuss light-toned gully deposits in the Atacama Desert that share similar morphologic and spectral signatures with the new Mars gully deposits. We suggest that, similar to the Atacama deposits, the Mars gully features may be remnant mudflows.
- 11:30 a.m. Soare R. J. \* Osinski G. R.  
*Gully Formation and Climate Change in the Canadian Arctic: A Possible Analogue of Near-Rim, Impact-Crater Gullies in Utopia and Western Elysium Planitia, Mars* [#1318]  
Studying the origin and development of the Eskimo Lakes' low-arctic gullies may further our understanding of climate-driven periglacial processes on Earth and, we think, by analogy, of climate-driven periglacial processes and gully formation on Mars.