

Thursday, March 15, 2007
WIND-SURFACE INTERACTIONS ON MARS AND EARTH
1:30 p.m. Crystal Ballroom A

Chairs: P. E. Geissler
J. R. Zimbelman

- 1:30 p.m. Bridges N. T. * Keszthelyi L. P. McEwen A. S. Thomas N. Thomson B. J. HiRISE Team
Aeolian Studies from HiRISE [#2098]
 HiRISE reveals the aeolian geology of Mars as complex, with evidence for current activity and a variable history. The Medusae Fossae contains cliff-forming layers, dune and ripples show a variety of scales and orientations, and very recent craters and other features have been affected by wind.
- 1:45 p.m. Roach L. H. * Mustard J. F. Murchie S. Langevin Y. Bibring J.-P. Bishop J. Bridges N. Brown A. Byrne S. Ehlmann B. L. Herkenhoff K. McGuire P. C. Milliken R. E. Pelkey S. Poulet F. Seelos F. P. Seelos K. CRISM Team
CRISM Spectral Signatures of the North Polar Gypsum Dunes [#1970]
 CRISM and HiRISE imagery of northern circum-polar dunes confirm the OMEGA detection of gypsum. We present spectral variations in gypsum-rich dunes that suggest dynamic processes and search for a gypsum source region in the north polar basal unit.
- 2:00 p.m. Tirsch D. * Jaumann R. Reiss D. Helbert J. Forget F. Millour E. Poulet F. Neukum G.
Dark Dunes in Martian Craters [#1569]
 We present an analysis of the dune volume and a possible consolidation of the surface material of the dark dunes in martian craters. For the latter analysis we measured the brightness temperatures and the thermal inertia of the dune surfaces.
- 2:15 p.m. Feldman W. C. * Bourke M. C. Elphic R. C. Maurice S. Prettyman T. H. Lawrence D. J. Hagerty J. J.
Constraints on the Structure and Composition of Sand Dunes Within Olympia Undae Using Mars Odyssey Neutron Spectrometer Data [#2311]
 Neutron spectrometer data for Olympia Undae show a water equivalent hydrogen content between 0.19 and 0.25 mass fraction. This corresponds to the filling of an open pore volume between 40% and 50% respectively in the upper 50 cm of dune deposits.
- 2:30 p.m. Warner N. H. * Farmer J. D.
Importance of Aeolian Processes in the Origin of the North Polar Chasmata [#1342]
 In this report, we re-examine the debate over the origin of the martian north polar chasmata. We conclude that a model for chasmata formation that emphasizes long-term aeolian erosion and modification of the polar layered material best explains the available data.
- 2:45 p.m. Wheeler A. J. Bishop M. A. *
Pilot Study of Higher Order Neighbor Statistics for Crescentic Dunes of the Martian North Polar Region [#1414]
 This pilot study reports on the geography of simple crescentic dunes (barchans) for the north polar region of Mars using ordered neighbor point pattern analysis within a geographical information system (GIS).
- 3:00 p.m. Geissler P. E. * Enga M.
Surface Changes on Mars: Gradual or Episodic? [#2190]
 Repeated observations by the Mars Global Surveyor spacecraft over four martian years suggest that surface albedo changes take place both episodically, during major dust storms, and also gradually by the cumulative action of winds and dust devils over several seasonal cycles.

- 3:15 p.m. Herkenhoff K. E. * Squyres S. Arvidson R. Athena Science Team
Overview of Recent Athena Microscopic Imager Results [#1421]
The Microscopic Imagers on Spirit and Opportunity continue to return excellent image data after more than three years on the martian surface. Recent results will be discussed.
- 3:30 p.m. Sullivan R. * Arvidson R. Grotzinger J. Knoll A. Golombek M. Jolliff B. Squyres S. Weitz C.
Aeolian Geomorphology with MER Opportunity at Meridiani Planum, Mars [#2048]
Wind/surface interactions are responsible for most geomorphologic characteristics of the landscape investigated by Opportunity, including many larger-scale features seen from orbit. Here we summarize this unusual weathering/erosion system.
- 3:45 p.m. Seiler W. M. * Chan M. A. Sullivan R. J.
Hematite "Microberry" Wind Ripples: Eolian Conditions for a Terrestrial Martian Analog from the Jurassic Navajo Sandstone, Utah-Arizona [#2076]
Hematite micro-concretion wind ripples from Jurassic Navajo Sandstone form unique analogs to martian "microberry" ripples and may be useful to scale geologic and atmospheric conditions on Mars.
- 4:00 p.m. Zimelman J. R. * Irwin R. P. III Williams S. H. Bunch F. Valdez A. Stevens S.
Granule Ripples on Earth and Mars: Documented Movement at Great Sand Dunes National Park, and Implications for Granule Movement on Mars [#1324]
We documented the volume of granules on large ripples that were moved by saltating sand during strong winds at Great Sand Dunes National Park. Wind data from nearby Alamosa airport allowed us to compare the granule movement to predicted sand flux.
- 4:15 p.m. Thomson B. J. * Bridges N. T.
Rock Abrasion Features in the Columbia Hills [#1780]
Wind-abraded rocks (ventifacts) were mapped along the Mars Exploration Rover Spirit traverse in the Columbia Hills. Mapped ventifacts deviate from orbital wind indicators, suggesting that local topography strongly influences aeolian processes.
- 4:30 p.m. Bourke M. C. * Nicoli J. Viles H. A. Holmlund J.
The Persistence of Fluvial Features on Clasts: Results of Wind Tunnel Abrasion Experiments [#1942]
Wind tunnel experiments show that there is differential persistence of fluvial transport signatures on clasts. We identify features, diagnostic of fluvial transport, that may survive in a muted form or have been loci for enhanced aeolian abrasion on Mars.