Tuesday, March 14, 2006
MARS: ANALOG STUDIES AND AEOLIAN DEPOSITION/EROSION
1:30 p.m. Crystal Ballroom A

Chairs: P. Lee
R. A. Beyer

1:30 p.m. Lee P. * Glass B. J. Osinski G. R. Parnell J. Schutt J. W. McKay C. P.
Gullies on Mars: Fresh Gullies in Dirty Snow, Devon Island, High Arctic, as End-Member Analogs **[#1818]**
We report new observations of freshly-formed gullies in dirty snow on Devon Island, High Arctic, that may serve as end-member analogs for gullies on Mars. The dirty snow gullies on Devon are of surficial origin and are transient on annual timescales.

1:45 p.m. Irwin R. P. III * Howard A. D. Craddock R. A.
Theater-Headed Valleys: The Roles of Overland Flow and Groundwater Sapping **[#1912]**
At theater-headed valleys in Utah and Arizona, we found diversity relative to the Laity-Malin sapping model, large discharges of ephemeral contributing streams from the plateau surface, and substantial erosion of vegetated alluvial fill since 1985.

2:00 p.m. Craddock R. A. * Irwin R. P. III Williams R. Swanson D. Howard A. D. Quantin C. Zimbelman J. R.
Topical Martian Field Studies in the Ka'u Desert, Hawaii **[#1384]**
We are conducting field studies in the Ka'u Desert, Hawaii to understand the history of gully development, eolian reworking of fluvial materials, and alluvial fan formation. The geologic processes in this area make it a good analog for understanding surficial processes on Mars.

2:15 p.m. Clifford S. M. * Heggy E. Ali M. Ciarletti V. Corbel C. Dinwiddie C. L. Dolon F. Le Gall A. Grimm R. E. McGinnis R. N. Ney R. Sandberg S. K.
Mars Analog Investigations of the West Egyptian Desert Utilizing Multifrequency GPR and Other Electromagnetic Sounding Techniques **[#2442]**
We present results from geophysical sounding investigations of two locations in the West Egyptian Desert as potential geologic and hydrologic analogs of Mars.

2:30 p.m. Dinwiddie C. L. * Sandberg S. K. McGinnis R. N. Grimm R. E.
Geophysical Field Investigation of a Potential Hyper-Arid Desert Analog to Mars: The Western Desert of Egypt **[#2335]**
We are conducting transient electromagnetic and vertical electrical soundings of potential Mars analog sites to quantify the geoelectrical characteristics of the subsurface as a complement to radar soundings. This paper summarizes our recent work in the western desert of Egypt.

2:45 p.m. Quinn R. C. * Ehrenfreund P. Grunthaner F. J. Taylor C. L. Zent A. P.
Decomposition of Organic Compounds in Aqueous Conditions in the Chilean Atacama Desert and on Mars **[#1778]**
We report on the degradation kinetics of organics added to Atacama soils and compare our results to the Viking LR decomposition rates. We find that the overall rate of organic decomposition by some Atacama soils exceeds that of the Viking samples.

3:00 p.m. Parteli E. J. R. * Durán O. Herrmann H. J.
The Shape of the Barchan Dunes in the Arkhangelsky Crater on Mars **[#1827]**
We use a dune model to calculate dunes on Mars, and find that an astonishing difference based on the efficiency of the wind in carrying grains into saltation resolves the discrepancy between previously estimated and observed dune sizes on Mars.

3:15 p.m. Bourke M. C. *
A New Model for Linear Dune Formation: Merged Barchan Convoys on Mars **[#2432]**
MOC images indicate that dunes on Mars display a range of morphodynamics. These include merging, extension and calving. A new model is presented whereby linear dunes form by the collision and merging of barchan and dome dune convoys.

3:30 p.m. Zimbelman J. R. * Williams S. H.
Aeolian Ripples on Earth and Mars: Scale Diversity and Implications for Modes of Particulate Transport **[#2047]**
Granule ripples at Great Sand Dunes National Park were documented to move over a one-year interval, which is relevant to better understanding ripple and dune features of many length scales on Mars.

3:45 p.m. Bridges N. T. * Kushunapally R. Razdan A. Stone A. Laity J. Greeley R. Addleman D.
Quantifying Abrasion Maturity Using High Resolution Laser Scanning: Preliminary Quantitative Results and Applications to Terrestrial and Martian Studies **[#2065]**
Using laser scanning and mathematical algorithms, we show that abraded analog targets undergo an evolution in textural form that can be quantified using simple parameters. These results can be extended to constrain the abrasion maturity of ventifacts on Earth and Mars.

4:00 p.m. Beyer R. A. *
Erosion, Burial, and Exhumation at Ganges Mensa, Mars **[#1914]**
The slopes and surfaces of Ganges Mensa show evidence for aeolian erosion, burial, and exhumation. This indicates that its shape and surfaces are not primary features, but have been modified by the same forces that alter terrain elsewhere on Mars.

4:15 p.m. Ori G. G. * Komatsu G. Pacifici A. Hauber E. Gwinner K. Neukum G. HRSC Co-Investigator Team
Deltaic, Sebkha and Aeolian Sedimentation in Juventae Chasma and Their Stratigraphic Relationships (Mars) **[#1247]**
The High Resolution Stereo Camera has remarkable stereo capabilities and it allows three-dimensional analysis of Martian outcrops in cliffs and slopes in a way similar to the study of large terrestrial outcrops or seismic lines.

4:30 p.m. Venechuk E. M. * Allen C. C. Oehler D. Z.
Widespread Layers in Arabia Terra: Implications for Martian Geologic History **[#1380]**
Mars Orbital Camera high-resolution images indicate extensive layers across Arabia Terra, with the exception of an altitude-dependent region in the eastern half. Three different types of layers suggest varied formational environments.