

Tuesday, March 24, 2009
POSTER SESSION I: MARS NEAR-SURFACE ICE
6:30 p.m. Town Center Exhibit Area

Morgan G. A. Head J. W. III Marchant D. R.

[*The Use of Equilibrium Landforms to Identify Recent Climate Change on Mars: Insights from Field Studies in the McMurdo Dry Valleys of Antarctica*](#) [#2217]

Recent climatic change on Mars has been recorded in a series of equilibrium landform assemblages located in Noachis Terra. We explore these features through the detailed mapping of terrestrial analogs in the Antarctic Dry Valleys.

Boyce J. M. Mouginis-Mark P.

[*Martian Impact Crater Ejecta Run-Out Efficiency: Its Implications for Water in the Subsurface*](#) [#1009]

Martian impact crater ejecta efficiency provides information about the water content of the ejecta. Based on new estimates of martian ejecta run-out distances, they appear to require saturation with water during their emplacement.

Kress A. Head J. W.

[*Ring-Mold Craters on Lineated Valley Fill, Lobate Debris Aprons, and Concentric Crater Fill on Mars: Implications for Near-Surface Structure, Composition, and Age.*](#) [#1379]

Analysis of ring-mold crater populations on lineated valley fill, lobate debris aprons, and concentric crater fill on Mars and of ice-impact experiments suggest crater-count-derived ages may be erroneously old.

Drake J. S.

[*Thermokarst on Mars? Insights from a Survey of Rimless Depressions*](#) [#1797]

Rimless depressions on Mars have been mapped in THEMIS imagery from 50° north to 60° south latitude. Geomorphic evidence, along with MOLA observations of the features' depths, suggests that their interior stratigraphy is depositional in nature.

Head J. W. III Marchant D. R.

[*Inventory of Ice-related Deposits on Mars: Evidence for Burial and Long-Term Sequestration of Ice in Non-Polar Regions and Implications for the Water Budget and Climate Evolution*](#) [#1356]

We compile an inventory of non-polar ice deposits on Mars to estimate water abundance with time during different ancient climate conditions. We find that significant volumes are removed from the system and sequestered in non-polar ice reservoirs.

Putzig N. E. Phillips R. J. Head J. W. Campbell B. A. Egan A. F. Plaut J. J. Carter L. M.
 Seu R. SHARAD Team

[*Do Shallow Radar Soundings Reveal Possible Near-Surface Layering Throughout the Northern Lowlands of Mars?*](#) [#2477]

SHARAD soundings across the Northern Lowlands yield returns delayed by about 0.5 microsec from the surface return. These features may correspond to subsurface interfaces due to layering in the near surface, possibly including water ice.

Pearce G. D. Osinski G. R. Soare R. J.

[*Intra-Crater Glacial Deposits and Ice-Mantling in Utopia Planitia, Mars*](#) [#2428]

We describe glacial and periglacial features found within a crater in Utopia Planitia, northern plains of Mars and suggest that there is strong evidence for multiple emplacement events of ice-rich mantles.

Pedersen G. B. M. Head J. W. III

[*Overview of Possible Ice-related Morphologies in the Transition Zone Between Elysium and Utopia Basin, Mars*](#) [#2081]

Small scale ring mold-like craters, thermally distinct craters and craters with bipartite ejecta are observed. We evaluate their distribution and compile an overview in connection with other landforms, which have been ascribed to the presence of ice.

Orloff T. C. Kreslavsky M. A. Aspbaugh E.

[Organization of Rocks on Patterned Ground in the Northern Latitudes of Mars](#) [#2205]

The time and spatial scale of rock migration on the surface of patterned ground on Mars is studied by observing patterning effects around impact craters. Rock organization is linked to the degradation of craters and the patterned ground mechanism.

Kress A. Head J. W.

[Lineated Valley Fill and Lobate Debris Aprons in the Deuteronilus Mensae Region, Mars: Implications for Regional Glaciation](#) [#1632]

Studies of lineated valley fill and lobate debris aprons in the Deuteronilus Mensae region, Mars, reveal that they are endmembers of a continuum of morphologies with the same mode of origin, which is that of debris-covered glacier.

Balme M. R. Murray J. B. Gallagher C. Muller J-P. Kim J-R.

[A Recent, Equatorial, Periglacial Environment on Mars](#) [#1837]

We present geomorphological evidence for geologically recent freeze/thaw conditions in the equatorial Elysium Planitia region of Mars. This suggests a (perhaps transient) recent, warmer, martian climate than current models predict.

Zanetti M. Hiesinger H. Reiss D. Hauber E. Neukum G.

[Scalloped Depression Development on Malea Planum and the Southern Wall of the Hellas Basin, Mars](#) [#2178]

We offer support for a solar insolation model of scallop depression development from THEMIS-IR images, and suggest that scallops form from thermal contraction cracks in the surface of the latitude-dependent ice-rich dust mantle on Malea Planum.

Zanetti M. Hiesinger H. Reiss D.

[Thickness Estimate of Ice-rich Mantle Deposits on Malea Planum, Southern Hellas Basin, Mars](#) [#2365]

A quantitative estimate of the thickness of ice-rich dust mantles on Malea Planum has been determined using the crater diameter-rim height ratio for buried 'ghost' craters. Results show a marked thickening on the southern wall of Hellas Basin.