

Monday, March 10, 2008
MARS: PINGOS, POLYGONS, AND OTHER PUZZLES
8:30 a.m. Crystal Ballroom B

Chairs: W. A. Ambrose
R. J. Soare

- 8:30 a.m. Soare R. J. * Osinski G. R. Costard F.
Recent, Late Amazonian Pingos, Ice-rich Landscapes and Periglacial Ponding in Utopia and Western Elysium Planitia, Mars [#1315]
We discuss raised-rim landforms (possible collapsed pingos), flat-floored depressions (possible alases) and polygonal patterned-ground in the northern plains. We suggest that the assemblage is a marker of thawed ground-ice and ponded water, formed at recent high obliquities.
- 8:45 a.m. Warner N. H. * Farmer J. D.
Martian North Polar Conical Mounds: A Reassessment of the Volcanic Origin Hypothesis [#1475]
Conical mounds located near the north polar cap of Mars exhibit morphologic similarities to terrestrial volcanic landforms. Here we describe morphologic evidence that supports an alternative hypothesis to the volcanic origin of the conical forms.
- 9:00 a.m. Dundas C. M. * McEwen A. S. HiRISE Team
Distribution and Morphology of Martian Fractured Mounds [#2044]
Fractured mounds observed on Mars by HiRISE are found in the mid-latitudes. These may be analogous to pingos on Earth. We discuss the distribution, settings, and morphologies of these features.
- 9:15 a.m. Pina P. * Bandeira L. Saraiva J. Antunes J.
Characterization of Polygonal Terrains on Mars [#2095]
This work presents a methodology for automated characterization of polygonal terrains on Mars.
- 9:30 a.m. Haltigin T. W. * Pollard W. H. Osinski G. R. Dutilleul P.
Comparative Morphometric Analysis of Polygonal Terrain at Potential Mars Phoenix Landing Sites [#2475]
This paper presents a morphological interpretation of polygonal terrain features found at potential Mars Phoenix landing sites, describing a great variation amongst the polygonal geometries evidenced by both qualitative and quantitative methods.
- 9:45 a.m. Levy J. S. * Head J. W. III Marchant D. R.
Mars Thermal Contraction Crack Polygon Classification and Distribution: Morphological Characterization at HiRISE Resolution [#1171]
We classify thermal contraction crack polygons on Mars into morphological species observable at HiRISE resolutions. This classification provides the basis for analysis of polygon evolution processes and substrate properties, including shallow, subsurface ice distribution.
- 10:00 a.m. Islam F. * Cooke M. L. McGill G. E.
Analysis of the First-Order Mechanics of Polygonal Fault Networks: Earth and Utopia Planitia, Mars. [#1951]
We investigate the first-order mechanics of polygonal fault networks in Utopia Planitia, Mars. We use numerical models to study the role buried topography plays in controlling the fault spacing of the giant polygons.

- 10:15 a.m. Mellon M. T. * Arvidson R. E. Marlow J. J. Phillips R. J. Asphaug E. Searls M. L. Martinez-Alonso S. HiRISE Team
Polygonal Patterned Ground and Sorted Rocks on Mars as Seen by HiRISE: The Phoenix Landing Site, Northern Plains and Beyond [#1770]
We examine the characteristics of polygonal patterned ground and boulder distributions in comparison with terrestrial analogs and numerical models, and find these features are consistent with the dynamics of permanently ice-cemented permafrost.
- 10:30 a.m. Zanetti M. R. * Hiesinger H. Reiss D. Hauber E. Neukum G.
Scalloped Depressions in Malea Planum, Southern Hellas Basin, Mars [#1682]
Scallops in the southern hemisphere were surveyed and mapped. These sublimation features appear to be influenced by large basin morphology and climate, primarily near Hellas. HiRISE images allowed interpretation of initial formation.
- 10:45 a.m. Sizemore H. G. * Golombek M. Mellon M. T.
Ice Table Depth Variability Near Small Rocks at the Phoenix Landing Site [#1427]
We make statistical predictions of the ice table depth variability in the area accessible to the Robotic Arm and highlight spatial configurations of surface rocks that Phoenix might exploit to optimize soil investigation.
- 11:00 a.m. Kadish S. J. * Head J. W. III Barlow N. G. Marchant D. R.
Pedestal Craters at High Latitudes on Mars: Marginal Sublimation Pits Implicate Ice and Snow in Pedestal Crater Substrate [#1751]
A sub-population of >2000 Mars pedestal craters shows pitted pedestal margins, interpreted as sublimation pits. These features implicate many tens of meters of snow and ice as the material underlying the pedestal and removed from intervening regions.
- 11:15 a.m. Farrand W. H. * Lane M. D. Edwards B. R.
North and South: Possible Tuyas and Hyaloclastite Hills on the Northern Plains and in the Southern Dorsa Argentea Region of Mars [#1761]
Steep sloped hills on the northern plains and in the Dorsa Argentea region are observed and a volcano-ice origin is considered in terms of their multi- and hyperspectral character.
- 11:30 a.m. Fagan A. L. * Sakimoto S. E. H.
Martian Polar Impact Craters: North-South Comparisons and Implications for Target Properties and Polar Processes [#1517]
We use high-resolution MOLA topographic data to examine polar impact crater topographic characteristics such as geometry, fill location, and cavity wall slope.