

Tuesday, March 8, 2011

SPECIAL SESSION:

CRYOSPHERES II: MARTIAN GROUND ICE AND ASSOCIATED LANDFORMS

8:30 a.m. Waterway Ballroom 1

Chairs: Timothy Titus
Stephen Clifford

- 8:30 a.m. Clifford S. M. * Lasue J. Le Gall A. Heggy E.
[*The Response of Martian Ground Ice to Burial by a Volatile-Poor Mantle: Potential Implications for the Volatile Evolution of the Medusae Fossae Formation*](#) [#2142]
We consider the thermal and volatile response of an ice-rich martian crust to burial by an initially dry porous mantle of sediment or volcanic ash.
- 8:45 a.m. Dinwiddie C. L. * McGinnis R. N. Stillman D. E. Bjella K. L. Grimm R. E.
[*Geophysical Mars Analog Studies of Multiphase Water in the Great Kobuk Sand Dunes, Northwestern Alaska*](#) [#2501]
Late-winter GPR and CCR geophysical surveys of high-latitude, slowly migrating sand dunes were highly effective at mapping geology and the hydrocryosphere. Such instruments should be regularly included in rover payloads.
- 9:00 a.m. Soare R. J. * Costard F. Pearce G.
[*Possible Pingos and Crater-Floor Landscapes in Northwest Utopia Planitia: A Re-Assessed Hypothesis Based on HiRISE Imagery*](#) [#1364]
Here we use HiRISE imagery to reevaluate a periglacial hypothesis, first proposed in 2005 by us on the basis of MOC imagery, analogically linking crater-floor mounds in northwest Utopia Planitia to pingo-thermokarst lake complexes on Earth.
- 9:15 a.m. Haltigin T. W. * Pollard W. H. Dutilleul P.
[*Statistical Evidence of Polygonal Terrain Self-Organization on Earth and Mars*](#) [#1622]
This research presents a new technique to study the evolution of polygonal terrain networks. Results from a variety of sites in the Canadian High Arctic and on Mars demonstrate that these networks become statistically more regular as they develop.
- 9:30 a.m. Séjourné A. * Costard F. Fedorov A. Gargani J. Soare R. J. Marmo C.
[*Thermokarst Degradation of Potential Ice-Wedge Polygons Inside Scalloped Depressions in Utopia Planitia, Mars*](#) [#1904]
Scalloped depressions formed by degradation of ground-ice dot the region of Utopia Planitia. Inside these depressions, polygons are successively degraded by sublimation forming semicircular hollows. The polygons could be underlain by ice-wedges.
- 9:45 a.m. Dundas C. M. * Byrne S. McEwen A. S.
[*Modeling Development of Martian Sublimation Thermokarst Landforms*](#) [#2527]
We model landscape evolution, driven by sublimation, of disturbances over the martian ice table, producing landforms similar to martian scalloped depressions.
- 10:00 a.m. Zent A. P. * Sizemore H. G. Rempel A. W.
[*Ice Lens Formation and Frost Heave at the Phoenix Landing Site*](#) [#2543]
A numerical model of frost heave and ice lens initiation, employing pre-melting physics, demonstrates that ice lenses are capable of initiating at the Phoenix landing site, even within the past few tens of thousands of years.