Tuesday, March 8, 2011
POSTER SESSION I: MARTIAN GROUND ICE: THEORY, MODELING, OBSERVATIONS, AND TERRESTRIAL ANALOGS
6:00 p.m. Town Center Exhibit Area

Titus T. N. Cushing G. E. Prettyman T. H.
Thermal Emission Spectrometer Estimates of the Mars North Polar Ice Table Depth and Thermal Inertia **[#2786]**
This study utilizes the diurnal cycle and the seasonal rise in temperature immediately following the complete sublimation of CO_2 ice, from the surface to determine thermal inertia and thickness of the top layer, and the thermal inertia of the lower layer of the polar regolith.

Wood S. E.
A General Analytic Model for the Thermal Conductivity of Loose, Indurated or Icy Planetary Regolith **[#2795]**
This paper describes an analytic model for estimating the effective thermal conductivity of porous planetary regolith.

Siegler M. A. Aharonson O. Schorghofer N.
Laboratory Measurements of Thermal Properties of Martian Permafrost Analogs **[#1861]**
In a series of laboratory experiments, we measure thermal conductivity, thermal diffusivity, and heat capacity of icy regolith created by vapor deposition under martian atmospheric conditions.

Fastook J. L. Head J. W. Marchant D. R.
Formation of Ice-Rich Lobate Debris Aprons Through Regional Icesheet Collapse and Debris-Cover Armoring **[#1063]**
We use a flowband model to assess development of lobate debris apron sublimation lag thickness and lateral extent beneath scarps. We obtain estimates of the climate in place as the LDAs were forming during collapse of a larger, regional ice sheet.

Bandeira L. Saraiva J. Pina P.
Where do Terrestrial Polygons of Adventdalen (Svalbard) Stand in Relation to Quantitatively Characterized Martian Networks? **[#1998]**
We present some results to verify where a terrestrial analogue network of Adventdalen, Svalbard (Norway) stands in relation to quantitively characterized polygonal networks on Mars.

Pina P. Vieira G. Christiansen H. H. Barata M. T. Saraiva J. Bandeira L. Lira C. Jorge M. Mora C. Ferreira A. Oliva M. Trindade A. Poelking E. Machado A. Neves M. Lousada M.
Characterizing Polygonal Terrains In-Situ on Adventdalen (Svalbard) for Comparison with Martian Analogues: The 2010 Field Campaign **[#1387]**
This work summarizes the campaign carried out in June 2010 to characterize polygonal terrains *in situ* on Svalbard for martian analogue studies and presents some preliminary results.

Orloff T. C. Kreslavsky M. A. Asphaug E. I.
Mechanism for Boulder Clustering on Thermal Contraction Polygons **[#2630]**
Boulders are clustered in polygon exteriors on high latitude martian patterned ground. Here we propose a mechanism involving seasonal frost and the thermal contraction of surface material.

Korteniemi J. Kreslavsky M. A.
Northern Patterned Ground Margin on Mars: Terrain Types and Age Estimates **[#2519]**
We conduct a detailed survey of the northern polygonal terrain margin (latitude band 50°–70°N), identify terrain types, describe their association with distinct crater populations, and show geological evidence of orbital element driven climate changes.

Giacomini L. Ferrari S. Massironi M.
Tumuli vs Pingos: A Comparative Study Between Daedalia Planum and Elysium Planitia Features **[#1118]**
We performed a comparative study between the Daedalia Planum and Elysium Planitia mounds considering the morphology, density distribution and the age. The analysis revealed that Elysium features could be pingos while the Daedalia ones can be tumuli.

Noguchi R. Kurita K.
Rootless Cone? Pingo? or Mud Volcano? in Central Elysium Planitia, Mars **[#1683]**
It is possible that Mars has experienced recent (~100 Ma) magmatism. In central Elysium Planitia, the identification of cone-like landforms are discussed: rootless cones, pingos, or mud volcanos. From their morphology, the landforms are thought to be rootless cones.

Dickson J. L. Head J. W. Fassett C. I.
Ice Accumulation and Flow on Mars: Orientation Trends and Implications for Climate in the Late Amazonian **[#1324]**
Preliminary results of a mid-latitude survey of glacial-like features show a latitude-dependent orientation trend, suggesting micro-climate driven accumulation of ice in the Late Amazonian. This trend is identical to that of young martian gullies.

Schaefer E. I.
Morphometric Analysis of Valleys for Erosive Glacial Modification in the Northern Midlatitudes of Mars **[#2796]**
The cross-valley topographic profiles of five valleys in the northern mid-latitudes of Mars are examined for evidence of cold-based glacial modification.

Yakovlev V. V.
Conditions and Mechanism of Mars Big Hydrolaccoliths Formation **[#1114]**
The physical conditions for the emergence on the surface of Mars big hydrolaccoliths and possible mechanism of their formation are considered.

Schulson E. M. Fortt A. L.
Measurements of Frictional Sliding of Cold Ice at –175°C **[#1416]**
The kinetic coefficient of friction of ice sliding slowly (5×10^8–1×10^{-3} m s^{-1}) upon itself under low normal stresses (0.02–0.1 MPa) at –175°C increases with increasing velocity, from 0.39 ± 0.09 at the lowest velocity to 0.77 ± 0.04 at the highest velocity.

Craft K. L. Lowell R. P. Kraal E.
Models of Martian Hydrothermal Circulation and Ice Melt with Implications for Surface Feature Formation **[#2334]**
Here we investigate the amount of fluid provided to the martian surface by dike- and sill-driven hydrothermal systems with overlying ice layers. The resulting fluid flow rates are then compared to model estimates for formation of surface features on Mars.

Rodriguez J. A. P. Tanaka K. L.
Evidence for In-Situ Trough Erosion in Planum Boreum, Mars **[#2639]**
We present geomorphologic evidence that demonstrates that north polar trough formation did not involve poleward migration. Instead, *in situ* ablation is proposed to have been the primary formational process of these features.

Guallini L. Brozzetti F. Marinangeli L.
First Evidence of Incipient Large-Scale Gravitational Tectonic Collapse in South Polar Layered Deposits? The Case of Promethei Lingula (Mars) **[#1678]**
In the present work we focus on the structural analysis of SPLD in Promethei Lingula, where we found broad and complex deformational systems. For the first time we report evidences of deep-seated gravitational slope deformations within PLD.

Marinova M. M. McKay C. P. Heldmann J. L. Davila A. F. Andersen D. T. Jackson W. A. Lacele D. Paulson G. Pollard W. H. Zacny K.
Sublimation-Dominated Active Layers in the Highlands of the Antarctic Dry Valleys and Implications for Other Sites **[#2644]**
The high-elevation Antarctic Dry Valleys represent an extremely cold and dry environment where subsurface liquid water is not present. Field observations and data are used to characterize and model this system, as well as alpine regions on Earth and Mars.