

Tuesday, March 13, 2007
POSTER SESSION I: MARS: POLAR, GLACIAL, AND NEAR-SURFACE ICE
6:30 p.m. Fitness Center

Milkovich S. M. Plaut J. J.

Martian South Polar Layered Deposit Stratigraphy and Implications for Accumulation History [#1929]

Several correlatable layer sequences are observed in the south polar layered deposits. The distribution of these sequences provide insight into the nature of the internal structure and the accumulation history of the SPLD.

Tanaka K. L. Bourke M. C.

Stratigraphy and Landscape Evolution of Chasma Boreale, Mars [#1856]

New high-resolution HiRISE and CTX image data acquired for parts of Chasma Boreale yield new insights into the stratigraphy and eolian history of this complex north polar canyon on Mars.

Rodriguez J. A. P. Tanaka K. L.

Complexity in the Stratigraphic, Erosional and Climatic Record of the Northern Polar Plateau of Mars [#1808]

The lower layered deposits of Planum Boreum appear to consist of ice-cemented porous dust that was eroded into troughs during the emplacement of a sandsheet, whose exhumation and mobilization may have led to extensive retreat of volatile rich layers.

Brown A. J. Byrne S. Roush T. Herkenhoff K. E. Bishop J. L. Hansen C. Green R. O. Russell P. McEwen A. Murchie S. L. CRISM Team HiRISE Team

High Resolution Observations of Korolev Crater and Mrs. Chippy's Ring During Summer by CRISM and HiRISE [#2308]

We report here on observations of exposed water ice deposits in Korolev Crater and Mrs. Chippy's Ring. We find unexplained textural and compositional structure in these regions only resolvable by high resolution measurements such as CRISM and HiRISE.

Kreslavsky M. A. Head J. W.

Unusual Glacial-like Features in the High-Arctic of Mars [#1576]

Very unusual ridges are interpreted as drop moraines left by extinct cold-based glaciers. Their unusual characteristics point to unusual materials and/or unusual conditions. None of H₂O, CO₂, SO₂ material provide a 100% satisfactory explanation.

Thueson M. Xie H.

Water Ice Investigation in Crater of Residual Polar Region Using THEMIS Data [#2355]

We examine water ice and CO₂ ice interaction in the Inuvik crater using THEMIS images.

Hansen C. J. McEwen A. Okubo C. Bridges N. Byrne S. Gulick V. Herkenhoff K. Kolb K. Mellon M. Russell P. HiRISE Team

HiRISE Observations of Mars' Southern Seasonal Frost Sublimation [#1906]

The sublimation of Mars' southern seasonal CO₂ cap has been imaged by HiRISE at high resolution in a variety of terrains. Enigmatic features with no earthly analogs are monitored to study their evolution. The influence of seasonal volatiles on gully formation is investigated.

Carrozzo F. G. Bellucci G. Altieri F. Bibring J.-P.

Identification and Spatial Distribution of Water Frost at Low Latitudes on Mars [#2096]

This paper reports the identification and the spatial distribution of water frost at low latitudes on Mars in the region between 30°S and 30°N. The study has been carried out by means of the OMEGA spectrometer on board the Mars Express.

Landis G. A. MER Athena Science Team

Observation of Frost at the Equator of Mars by the Opportunity Rover [#2423]

Frost is observed on the MER-B rover at sunrise.

Banks M. E. Pelletier J. D.

Forward Modeling of the Topography of Ice on Mars to Infer Basal Shear Stress Conditions [#2396]

A threshold-sliding model is used to reconstruct ice that has partially covered impact craters located near or on the edges of the South Polar Layered Deposits. Model results indicated a constant basal shear stress of ~0.6 bars, almost one-third that found for the Greenland ice sheet.

Kadish S. J. Head J. W. III

Microclimates on the Tharsis Rise and Volcanoes: Orographic Effects and Geological Processes [#1120]

We explore regional microclimates on the island of Hawaii, and draw some comparisons to those observed and likely on the Tharsis volcanoes on Mars.

Kadish S. J. Head J. W. III Marchant D. R.

The Age and Morphology of the Ascraeus Mons Fan-shaped Deposit [#1125]

The fan-shaped deposit on the NW flank of Ascraeus Mons is interpreted to be formed from cold-based glaciation, which interacted with volcanism during the glacial period; new crater size-frequency distribution data yield a Late Amazonian age of 100 Myr or older for the glacial deposits.

Helbert J. Head J. W. III Kreslavsky M.

A Global Physical and Morphological Survey of Candidate Ice-rich Environments and Deposits on Mars [#1279]

We report on our currently ongoing systematic survey of potentially ice-rich deposits on Mars using the BMST. The analysis builds on our recent studies focusing now on a general understanding of the link between morphological and physical properties to interpret ice-related landforms.

Ostrach L. R. Head J. W. III

Amazonian Lobate Debris Aprons (LDA) in the Mid-Latitudes of Mars: Assessing the Role of Water Ice in Their Formation and Evolution [#1100]

We analyze lobate debris aprons on Mars to assess the amount of contained ice; the technique used suggests significant variability in nearby and adjacent deposits. Morphological and morphometric analyses are underway to assess causes.

Levy J. S. Head J. W. III Marchant D. R.

LVF/LDA Stratigraphy in Nilosyrtris Mensae, Mars: Evidence for Multi-Stage Glacial Activity [#1384]

We present stratigraphic, topographic, and textural relationships between lineated valley fill (LVF) and lobate debris apron (LDA) morphological units in Nilosyrtris Mensae as evidence of multiple stages of glacial overprinting during the recent Amazonian.

Hauber E. van Gasselt S. Chapman M. G. Neukum G.

Geomorphic Evidence for Former Lobate Debris Aprons at Low Latitudes on Mars: Indicators of the Martian Paleoclimate [#1666]

We show geomorphic evidence for the former presence of lobate debris aprons at low latitudes (<30°) on Mars. Since lobate debris aprons are thought to contain ice, which is theoretically not stable at these latitudes today, this observation has implications for the paleoclimate.

Berman D. C. Crown D. A. Bleamaster L. F. III

Degradational Morphologies of Mid-Latitude Craters on Mars [#1400]

Surveys of craters >20 km in two mid-latitude regions, one in the south and one in the north, have shown ice-related degradational features (lobate flows, channels, etc.) to be common in large craters and have an orientation dependence on latitude.

Grimm R. E. Stillman D. E. Dec S. F.

Abundance and Electrical Properties of Interfacial Water in the Martian Regolith [#2249]

Thin films of unfrozen water in Mars JSC-1 at subfreezing temperatures are present at a few percent by volume, but are electrically discontinuous.

Travis B. J.

On Modeling the Seepage of Water into the Martian Subsurface, Part II [#2352]

Numerical modeling of water seepage into a cold martian regolith indicates a piston-like flow behind a freezing front, with significant infiltration capable on a timescale of months.

Cornwall C. Titus T. N.

A Study of Spatial and Temporal Distribution of Martian Polar Cold Spots [#2391]

We use three Mars years of MGS TES data to quantify spatial and temporal characteristics of cold spots. We utilize two subsets of the TES polar data: (1) the polar ring (latitude 86°–87.2°) and (2) “cold spot only” data, where bolometer brightness temperatures are less than 135 K.

Fenton L. K. Geissler P. E. Haberle R. M.

South Polar Warming on Mars: Climate Forcing by Recent Albedo Changes [#1480]

Ames Mars GCM runs indicate that observed albedo changes (comparing MGS Mapping Year 1 albedos to Viking albedos) produce warmer south polar summertime air temperatures, likely contributing to observed scarp retreat in south polar residual CO₂ ice.