MARTIAN NEAR-SURFACE ICE: PROPERTIES AND PROCESSES
1:30 p.m. Crystal Ballroom A

Chairs: T. K. P. Gregg
K. L. Tanaka

1:30 p.m. Mellon M. T. * Feldman W. C.
The Global Distribution of Martian Subsurface Ice and Regional Ice Stability [#2204]
We examine the latest global-scale distribution of subsurface ice inferred from Mars Odyssey measurements and compare it with theoretical estimates of ice stability under various climate conditions.

1:45 p.m. Fastook J. L. * Shean D. E.  Head J. W.  Marchant D. R.
Ice Sheet Modeling During High-Obliquity Climates on Mars: Application to Tharsis Montes Tropical Mountain Glaciation [#1794]
Terrestrial ice sheet models are used to model formation and evolution of Tharsis Montes tropical mountain glaciers to assess obliquity scenarios and to help establish a geologically based reconstruction of the orbital and climate history of Mars.

2:00 p.m. Winebrenner D. P. * Koutnik M.  Waddington E. D.  Pathare A. V.  Murray B. C.
Byrne S.  Bamber J. L.
Evidence for Past Flow in the Martian North Polar Layered Deposits from Ice Flow Inverse Modeling [#1875]
We analyze MOLA data on the NPLD and find that the inter-trough surface is consistent with ice flow equilibration of accumulation above present-day troughs and ablation below. We interpret this as evidence for ice flow prior to trough formation or persistence.

2:15 p.m. Hvidberg C. S. * Fishbaugh K. E.
Recent Flow Rates of the Martian North Polar Layered Deposits [#2053]
We have correlated layers exposed in trough walls across the martian north polar layered deposits. We compare the resultant stratigraphy with model predictions to assess whether large-scale flow has significantly affected the layers.

2:30 p.m. Fishbaugh K. E. * Hvidberg C. S.
Martian North Polar Layered Deposits: Stratigraphy and Relative Accumulation Rates [#1647]
Using MOC images and MOLA data, we correlate individual layers within the North Polar Layered Deposits up to a depth of ~500 m to gain stratigraphic information which is used to derive relative accumulation rates across the PLD and through time.

Stratigraphy of North Polar Deposits on Mars: Major New Findings [#2344]
Analyses based on recent imaging and topographic data of parts of the north polar region on Mars are resulting in significant new understandings in the characterization and development of stratigraphy and landforms as related to sediment and volatile supply, climate variations, and eolian processes.

3:00 p.m. Kolb E. J. * Tanaka K. L.  Greeley R.  Neukum G.  HRSC Co-Investigator Team
The Residual Ice Cap of Planum Australe, Mars: New Insights from the HRSC Experiment [#2408]
In this abstract we present results of our geologic mapping of the south polar residual ice cap deposits.

3:15 p.m. Gregg T. K. P. * Briner J. R.  Paris K. N.
Glaciated Terrain in Gusev Crater, Mars [#1752]
Detailed investigation of hummocky terrain on the floor of Gusev crater, Mars, reveals robust similarities with terrestrial glaciated landscapes.
3:30 p.m. Rossi A. P. * Chicarro A. Pacifici A. Pondrelli M. Helbert J. Benkhoff J. Zegers T. Foing B. Neukum G. Widespread Periglacial Landforms in Thaumasia Highland, Mars [1568] Recent glacial and periglacial landforms appear widespread in Thaumasia Highland. We are mapping them using HRSC data and, locally, MOC NA and Themis VIS. We started ice stability modeling for these landforms.

3:45 p.m. McMenamin D. S. * McGill G. E. Martian Glacial Melt and Atmospheric Methane [1307] We compare possible sources of basal melt in martian glaciers and find that methane hydrate clathrate is an interesting possibility. If present in modern remnants of glacial ice, methane hydrate may also be a reservoir for atmospheric methane.


4:15 p.m. Helbert J. * Head J. W. Marchant D. Shean D. Kreslavsky M. First Prospecting for Ice in the Flank Deposit at Arsia Mons [1371] There are several units on Mars which have been interpreted as glacial deposits based on morphological evidence. Our current focus is the Arsia Mons fan-shaped deposit. We will report some preliminary results of our prospecting for ice in one of the young units of the Arsia Mons deposit.

4:30 p.m. Crown D. A. * Chuang F. C. Berman D. C. Miyamoto H. Ice-Driven Degradation Styles in the Martian Mid-Latitudes: Constraints from Lobate Debris Aprons, Lineated Valley Fill, and Small Flow Lobes [1861] This investigation examines the geomorphic characteristics of lobate debris aprons, lineated valley fill, and small flow lobes found on crater rims and massifs in order to characterize emplacement styles for ice-rich flows on Mars.