Thursday, July 12, 2007
THE NORTH AND SOUTH POLAR LAYERED DEPOSITS,
CIRCUMPOLAR REGIONS, AND CHANGES WITH TIME
8:30 a.m. Beckman Auditorium

Chairs: S. M. Clifford
W. M. Calvin

8:30 a.m. INTRODUCTORY THEMES – FRAMING THE SESSION

8:35 a.m. Forget F. * Montmessin F. Levradi B. Haberle R. M. Head J. W. Madeleine J.-B.
Glaciers, Polar Caps and Ice Mantling: The Effect of Obliquity on Martian Climate [#3028]
Simulations performed with a global climate model designed to simulate the current water cycle but
run with various obliquities allow us to explain the formation of most of the regions where glacier-like
features have been observed.

8:50 a.m. Head J. W. * Marchant D. R. Forget F.
Regional Polar Glaciation in the Hesperian Period of the History of Mars: The South Circumpolar
Dorsa Argentea Formation as an Ancient Ice Sheet Remnant [#3115]
The south circumpolar Hesperian-aged Dorsa Argentea Formation is interpreted as remnants of a
regional ice sheet that underwent advance, basal melting and drainage, and retreat; MARSIS data
suggest that some ice may be preserved today.

9:05 a.m. Bandfield J. L. * Feldman W. C.
Martian Subsurface Water Ice Distributions: A Comparison of Multiple Datasets and
Spatial Resolutions [#3192]
A comparison of water ice depths at high latitudes determined from both GRS neutron and
TES/Themis thermal infrared measurements are in broad agreement with each other and distributions
predicted by atmospheric exchange and vapor diffusion models.

9:20 a.m. Mellon M. T. * Searls M. L. Martinez-Alonso S. HiRISE Team
HiRISE Observations of Patterned Ground on Mars [#3285]
In this work we present an examination of HiRISE images for the presence of polygonal-patterned
ground, including their geographic distribution and detailed morphology.

9:35 a.m. Langevin Y. * Bibring J.-P. Murchie S. Vinceendon M. Poulet F. Douté S. Gondet B.
Kieffer H. Le Mouélic S.
Evolution of the Seasonal Caps of Mars Observed by OMEGA on Mars Express [#3246]
The OMEGA vis/near-IR infrared spectrometer in orbit since January 2004 has obtained major results
on the evolution of seasonal caps of Mars. A wide range of complex structures are observed, which
require a variety of processes to be interpreted.

9:50 a.m. Plaut J. J. * Picardi G. MARSIS Team
One Mars Year of MARSIS Observations: Global Reconnaissance of the Subsurface and
Ionosphere of Mars [#3341]
MARSIS is completing its first Mars year of subsurface and ionospheric sounding. Results from both
aspects of the experiment are reviewed.

10:05 a.m. Phillips R. J. * Seu R. Plaut J. J. Biccard D. Safaeinili A. Campbell B. A. Carter L. M.
Holt J. W. Leuschen C. J. Byrne S. Orosee R. Picardi G. Smrekar S. E. Putzig N. E.
Egan A. F. Bernardini F. Nunes D. C. SHARAD Team
Stratigraphy of the North Polar Deposits as Mapped by Sounding Radars [#3042]
The SHARAD and MARSIS radars are mapping the three-dimensional stratigraphy of the
north polar deposits.
The Nature and Mobility of Bright Patches in the North Residual Ice Cap from MARCI, CTX, OMEGA and CRISM [#3267]
Numerous persistent cold bright spots are seen in the northern residual ice cap. Their appearance and fine-grained water ice composition have implications for current accumulation zones and evolution of the northern ice deposits.

The Origin of Perennial Water Ice at the South Pole of Mars [#3014]
The mapping of south polar H₂O-rich terrains by OMEGA onboard Mars Express have raised a number of questions related to their origin. We propose that these water ice deposits are the relics of Mars' orbit precession cycle and that they were laid down more than 10,000 years ago.

10:50 a.m. Thomas P. C. * James P. B. Wolff M. Malin M. C. Cantor B. Edgett K. Calvin W.
Residual South Polar Cap of Mars: Continuing Changes and Their Significance [#3125]
Continuing changes in the residual south polar cap are used to constrain its history.

11:05 a.m. MODERATED DISCUSSION