

Tuesday, March 11, 2008
MARS: NORTH POLE, SOUTH POLE — STRUCTURE AND EVOLUTION
8:30 a.m. Crystal Ballroom B

Chairs: P. S. Russell
T. N. Titus

- 8:30 a.m. Putzig N. E. * Phillips R. J. Holt J. W. Safaeinili A. Plaut J. J. Smrekar S. E. Seu R. Biccari D. Campbell B. A. Carter L. M. Egan A. F. Giacomoni E. Russo F. Cutigni M. Fuga O. SHARAD Team
Stratigraphic Mapping of the North Polar Layered Deposits on Mars from Radar Soundings [#2355]
We present radar-based stratigraphic mapping of ice-rich layers throughout Planum Boreum, at the north pole of Mars. Subsurface reflections extend to the base of the deposits and provide key information regarding past and present climate on Mars.
- 8:45 a.m. Selvans M. M. * Plaut J. J. Milkovich S. M. Aharonson O.
Mapping the Internal Structure of the North Polar Plateau Using MARSIS and SHARAD [#2072]
Using laterally extensive reflectors in MARSIS and SHARAD radargrams, we map out the large-scale internal structure of the North Polar Plateau on Mars, identify interfaces within the plateau, and to estimate volumes between these interfaces.
- 9:00 a.m. Pathare A. V. * Arnold J. A. Murray B. C.
Stratigraphic Anomalies in the Martian North Polar Layered Deposits [#1119]
We have identified numerous examples of anomalous NPLD trough stratigraphy, including poleward-facing layered terrain and equatorward-facing banded terrain, respectively implying a recent lack of net deposition and net sublimation across the NPLD.
- 9:15 a.m. Fishbaugh K. E. * Byrne S. Herkenhoff K. E. Russell P. S. Kirk R. L. McEwen A. S. HiRISE Team
Characterizing and Defining Layers in the Martian North Polar Deposits Using HiRISE: Implications for Climate Change [#1781]
We use HiRISE images and stereo topography to take a new look at what defines layers in the martian north polar deposits and investigate the implications of this analysis for the record of global climate change preserved in the polar layers.
- 9:30 a.m. Russell P. S. * Byrne S. Herkenhoff K. E. Fishbaugh K. E. Thomas N. McEwen A. S. HiRISE Team
Active Mass-wasting Processes on Mars' North Polar Scarps Discovered by HiRISE [#2313]
Mass-wasting of the martian north polar deposits "basal unit," which is facilitated by fracturing and undercutting of competent layers, is an important, wide-spread, and currently active process as seen in multi-temporal HiRISE images.
- 9:45 a.m. Calvin W. M. * Seelos F. P. Murchie S. L. Seelos K. D. Titus T. N. James P. B.
Evolution and Water Ice Content of Layered Materials in the Northern Polar Deposits of Mars [#1939]
CRISM, MARCI and CTX observations are used to constrain composition and evolution of the North Polar Layered Deposits. Many low albedo "dirty" layers still have strong water ice signatures that can be mapped and traced to intrinsic layer properties.
- 10:00 a.m. Horgan B. H. N. * Bell J. F. III Noe Dobrea E. Z. Cloutis E. A. Bailey D. T. Craig M. A. Stewart L.
Hydrated Units in the Martian North Polar Region [#2122]
We show that the hydration signature detected in Olympia Undae extends to other units in the north polar region, including nearly the entirety of the north polar erg, dunes within reentrants in Planum Boreum, and in the north polar layered deposits.

- 10:15 a.m. Herkenhoff K. E. * Byrne S. Fishbaugh K. E. Hansen C. J. Russell P. S. HiRISE Team
HiRISE Observations of the South Polar Region of Mars [#2361]
The High Resolution Imaging Science Experiment on the Mars Reconnaissance Orbiter has observed the south polar region throughout the spring and summer seasons on Mars. Results of analyses of seasonal processes and the south polar layered deposits will be presented.
- 10:30 a.m. Byrne S. * Russell P. S. Fishbaugh K. E. Hansen C. J. Herkenhoff K. E.
McEwen A. S. HiRISE Team
Explaining the Persistence of the Southern Residual Cap of Mars: HiRISE Data and Landscape Evolution Models [#2252]
We report on analysis of the HiRISE imagery and model results of icy landscape evolution. Our model results, constrained by these HiRISE data, allow us to explain the observed behavior of the southern residual cap without invoking climate change.
- 10:45 a.m. Thomas P. C. * Lougen J. Posiolova L. Calvin W. M. James P. B. Lee S. W.
Residual South Polar Cap of Mars: MRO Shows Geography and History [#1349]
This work reports late southern summer mapping of the entire south residual cap of Mars by the CTX camera on MRO, and the science results from these data.
- 11:00 a.m. Titus T. N. * Brown A. J. Seelos F. P. Murchie S. L. Piqueux S.
Christensen P. R. CRISM Team
Infrared Observations of Mars South Polar Residual Cap: When Eating Swiss Cheese — Use a Fork [#2359]
On the edge of the Mars southern residual cap is a region known as the fork region. This region contains scarps, CO₂ Swiss cheese mesas, and a strip of exposed H₂O ice 10 km wide. We examine this region using both THEMIS and CRISM observations.
- 11:15 a.m. Mougnot J. * Kofman W. Safaeinili A. Herique A. Plaut J. J. Picardi G.
Thickness of South Polar Residual Cap of Mars by MARSIS [#1723]
We present here our work about the surface reflectivity measured by MARSIS to derive the thickness and the dielectric constant of the southern residual ice cap of Mars.
- 11:30 a.m. Milkovich S. M. * Plaut J. J. Safaeinili A. Phillips R. J. Seu R. Picardi G.
Local and Regional Stratigraphy of the South Polar Layered Deposits of Mars in Radar [#1466]
Radar reflections within several regions of the south polar layered deposits of Mars may correlate with groups of layers observed in images. Radar data from the main body of the SPLD indicate two distinct units within the upper several kilometers.