Monday, March 15, 2004
MARS POLAR SCIENCE AND EXPLORATION
8:30 a.m. Salon B

Chairs: A. Colaprete
O. Aharonson

8:30 a.m. Leovy C. Wood S. E. Catling D. * Montgomery D. R. Moore J. Barnhart C. Ginder E. Louie M.
Evidence for Possible Exposed Water Ice Deposits in Martian Low Latitude Chasms and Chaos **[#2016]**
Morphology, modeling of sublimational erosion, thermal inertia similar to the north polar layered terrain, and relatively high albedo lead us to propose that interior layer deposits in Juventae Chasma may consist of residual water ice perhaps mixed with varying amounts of dust or sand.

8:45 a.m. Schorghofer N. * Aharonson O.
Stability and Exchange of Subsurface Ice on Mars **[#1463]**
We seek to understand the distribution and state of subsurface ice on Mars based on the physical processes which govern the exchange of water vapor between the atmosphere and the subsurface.

9:00 a.m. Sears D. W. G. * Moore S. R. Meier A. Chittenden J. Kareev M. Farmer C. B.
Evaporation Rates for Liquid Water and Ice Under Current Martian Conditions **[#2112]**
Evaporation rates for water under martian conditions are determined for both advective and non-advective conditions.

9:15 a.m. Prettyman T. H. * Wiens R. C. Murphy J. R. Reisner J. M. Feldman W. C.
Seasonal Cycle of Carbon Dioxide and Atmospheric Circulation in Mars' Southern Hemisphere as Observed by Neutron Spectroscopy **[#1878]**
Data from the Mars Odyssey Neutron Spectrometer are analyzed to determine seasonal variations in atmospheric composition and CO_2 surface ice in the southern hemisphere, providing constraints on the polar energy balance and atmospheric circulation.

9:30 a.m. Shkuratov Yu. * Kreslavsky M. A. Kaydash V. Opanasenko N. Videen G. Bell J. Wolff M. Hubbard M. Noll K. Lubenow A.
Imaging Polarimetry of Mars with Hubble Space Telescope in 2003 Opposition **[#1435]**
We report on results of calibration and present distributions of polarization degree of Mars surface from HST observations. Polarization of light scattered by atmospheric aerosols gives information about particles and their orientation.

9:45 a.m. Haberle R. M. * Montmessin F. Forget F. Levrard B. Head J. W. III Laskar J.
GCM Simulations of Tropical Ice Accumulations: Implications for Cold-based Glaciers **[#1711]**
General circulation models are predicting significant ice accumulations on the western flanks of the Tharsis volcanoes at times of high obliquity.

10:00 a.m. BREAK

10:15 a.m. Colaprete A. * Haberle R. M. Montmossin F. Scheaffer J.
Numerical Modeling of Glaciers in Martian Paleoclimates **[#2149]**
Numerical modeling of glaciers on Mars.

10:30 a.m. Arfstrom J. D. *
Valley Glaciers on Mars: Calculation of Flow Rate and Thickness **[#1105]**
I demonstrate how to calculate strain rates in a manner applicable to glacier-like valley flows such as in Dao Vallis, which are thick enough for flow rates to be significantly affected by geothermal heating.

10:45 a.m. Byrne S. * Ivanov A. B.
Internal Structure of the Southern Polar Cap of Mars and Formation Implications **[#1819]**
Exposures of bench forming layers on polar scarps were used to characterize the interior of the southern ice cap. By fitting surfaces to these obsevations we can predict where else these strata will be exposed.

11:00 a.m. Aharonson O. *
Sublimation at the Base of a Seasonal CO_2 Slab on Mars **[#1918]**
Conduction provides a non-negligible contribution to the mass balance at the base of a seasonal CO_2 slab. Sublimation can lead to enhanced gas pressure and venting that could, in part, be responsible for observed defrosting features.

11:15 a.m. Plaut J. J. * Christensen P. Koutnik M. Marsden P. Murray B.
Impact Crater Abundance of the Martian South Polar Layered Deposits from THEMIS Visible Imaging **[#1425]**
Visible images from Mars Odyssey THEMIS are used to inventory the impact crater population of the Martian south polar layered deposits.

11:30 a.m. van Gasselt S. * Reiss D. Neukum G.
Recent Changes in South-Polar-Polygonal Terrain During One Martian Year: Implications for Subsurface Ice-Wedges **[#1891]**
Based on observations in MOC-NA imagery of two subsequent winters at the Martian south pole, we observed changes in the polygonal crack pattern which implies recent formation processes.

11:45 a.m. Zent A. *
An Historical Search for Unfrozen Water at the Phoenix Landing Site **[#1947]**
The evolution of the Mars CO_2-cap system controls the subsurface thermal and H_2O regime at the Phoenix site.