

Monday, March 13, 2006
MARS: CORE TO CLOUDS
2:15 p.m. Crystal Ballroom B

Chairs: G. A. Neumann
R. J. Lillis

- 2:15 p.m. Fei Y. * Zhang L. Komabayashi T. Sata N. Bertka C. M.
Evidences for a Liquid Martian Core [#1500]
 We present new melting data in the system Fe-Ni-S at Martian core pressures, using multi-anvil apparatus and laser-heated diamond-anvil cell. The data provide fundamental understanding of the relationships among the temperature, composition, and physical state of the martian core.
- 2:30 p.m. Lillis R. J. * Frey H. V. Manga M. Mitchell D. L. Lin R. P. Acuna M. H.
Bracketing the End of the Martian Dynamo: The Ages and Magnetic Signatures of Hellas and Ladon Basins [#2183]
 We use visible and buried craters to compare crater retention ages of the magnetized Ladon basin and the demagnetized Hellas Basin to bracket the end of the martian dynamo era.
- 2:45 p.m. Hood L. L. *
East-West Trending Magnetic Anomalies in the Southern Hemisphere of Mars: Modeling Analysis and Interpretation [#2203]
 The east-west trending anomalies in the Terra Sirenum region can be explained as due to their location near the martian paleoequator so that magnetization directions are nearly in the north or south directions. No elongated sources are required.
- 3:00 p.m. Voorhies C. V. *
Thickness of the Magnetic Crust of Mars from Magneto-Spectral Analysis [#1426]
 Magnetic spectra from six analyses of MGS-MAG/ER data are fitted with that expected from both compact and extended sources. Magnetic crustal thickness is put at 47.8 ± 8.2 km. Extended sources are typically 650 km across. How did such vast regions form?
- 3:15 p.m. Bridges J. C. * Wright I. P.
Atmospheric Thickness on Ancient Mars: Constraints from SNC Meteorites [#1990]
 We use carbonate abundance in an SNC meteorite as a guide to the carbonate abundances in the upper 7 km of Mars crust. This in turn is equivalent to an atmosphere $p\text{CO}_2$ of 2.3 bar $>3.8\text{Ga}$ and total early Mars CO_2 inventory of 45 bar CO_2 .
- 3:30 p.m. Chappelow J. E. * Sharpton V. L.
The Event That Produced Heat Shield Rock and Its Implications [#1431]
 The discovery of the iron meteorite "Heat Shield Rock" in Terra Meridiani led to speculation that its presence implies Mars must once have had a denser atmosphere. However, to date no quantitative work addressing this theory has been presented.
- 3:45 p.m. Santiago D. L. * Colaprete A. Haberle R. M. Sloan L. C. Asphaug E. I.
Clouds, Cap, and Consequences: Outflow Events and Mars Hesperian Climate [#1484]
 We focus on how outflows relate to past climate using a MGCM with cloud scheme. Early runs show water goes to the poles with current orbital configurations. We run the model for five years with a northern water ice cap then release the outflow, and will present these results.
- 4:00 p.m. Kreslavsky M. A. * Head J. W.
Evolution and Inner Structure of the Polar Layered Deposits on Mars: A Simple Deposition/Ablation Balance Model [#2058]
 We show that simple changing climate-controlled balance of sublimation and ablation with albedo feedback and slope effect explains many characteristic properties of the polar layered deposits on Mars.

4:15 p.m. Neumann G. A. * Wilson R. J.
Night and Day: The Opacity of Clouds Measured by the Mars Orbiter Laser Altimeter (MOLA) [#2330]
MOLA uniquely provides atmospheric column opacity measurements both night and day. We contrast the pronounced nighttime opacity of the aphelion season tropical water ice clouds, and the enigmatic low opacity of the southern polar winter dry ice clouds.