

Thursday, November 13, 2008

ATMOSPHERIC SCIENCES TO UNDERSTAND THE PAST OF MARS

11:10 a.m. – 12:30 p.m.

Chair: V. Chevrier

Head J. W. * (Invited, 20 minutes)

[Water as a Clue to the Evolution of the Atmosphere and Climate History of Mars: Evidence for Circum-Polar/Non-Polar Ice Deposits, Running Water and Standing Bodies of Water in the History of Mars](#) [#9069]

New data on geological deposits and processes provide insight into the history of the atmosphere and the climate of Mars and can be used to help formulate general circulation models to explore and understand the nature and evolution of the atmosphere and climate.

Kerber L. * Head J. W.

[The Dispersal of Pyroclasts in the Martian Atmosphere](#) [#9020]

Modeling of the transport of pyroclasts in the Martian atmosphere from Apollinaris Patera and the Tharsis volcanoes using an eruption model for martian conditions coupled with a Global Circulation Model (GCM).

Levine J. S. * Summers M. E.

[Sulfur Dioxide and the Production of Sulfuric Acid on Present-Day and Early Mars: Implications for the Lack of Detected Carbonates on the Surface](#) [#9016]

During the Tharsis formation, we estimate that about 1 bar of sulfur dioxide was released to the atmosphere. The chemical transformation of sulfur dioxide to sulfuric acid in the present-day and early atmosphere of Mars is assessed.

Chaufray J.-Y. * Modolo R. Leblanc F. Chanteur G. Bertaux J.-L. Quemerais E. Retherford K. D.

[Atmospheric Escape at Mars](#) [#9014]

We describe the measurements of the atmospheric escape done by Mars Express and the estimation of the oxygen escape rates obtained from a 3D model of the martian exosphere coupled with a 3D model of the Mars-solar wind interaction.

Smith R. L. * Kostiuik T. Livengood T. A. Fast K. E. Hewagama T. Delgado J. D. Sonnabend G.

[Ground Based Observation of Isotopic Oxygen in the Martian Atmosphere Using Infrared Heterodyne Spectroscopy](#) [#9120]

Infrared spectra of isotopic CO₂ in the martian atmosphere were obtained using HIPWAC, which was interfaced at the NASA IRTF. Absorption features of the CO₂ isotopologues have been identified and the isotopic ratios of oxygen have been determined.

Kadish S. J. Head J. W. Forget F. Fastook J. L. Marchant D. R. (1-minute poster summary)

[Decoding the Climate Signal in the Tharsis Montes Fan-shaped Deposits: The Dynamics of Tropical Mountain Glaciers](#) [#9030]

Fan-shaped deposits extending NW from the Tharsis Montes on Mars are remnants of cold-based glaciers. We aim to use the morphologies within the FSDs in conjunction with atmospheric and glacial models to decode the climate signal left by the deposits.

12:30 – 2:00 p.m.

LUNCH