Thursday, November 13, 2008
REFERENCE ATMOSPHERES, DATABASE AND ENTRY, DESCENT, LANDING ISSUES
2:00 – 3:30 p.m.

Chair: P. Withers

Engelund W. C. * Powell R. W. Tolson R. H. **(Invited, 20 minutes)**
Atmospheric Modeling Challenges and Measurement Requirements for Mars Entry, Descent and Landing **[#9025]**
The quest for improved knowledge of the martian atmosphere must be considered not only as a scientific endeavor, but also one of improving entry, descent, and landing engineering model capabilities, and ultimately system level robustness for Mars missions.

Millour E. * Forget F. González-Galindo F. Spiga A. Lebonnois S. Montabone L. Lewis S. R. Read P. L. López-Valverde M. A. Gilli G. Lefèvre F. Montmessin F. Desjean M.-C. Huot J.-P. MCD/GCM Development Team
The Latest (Version 4.3) Mars Climate Database **[#9029]**
The Mars Climate Database (MCD) is a freely distributed database of meteorological fields derived from General Circulation Model numerical simulations of the martian atmosphere, designed to be useful for many engineering and scientific studies.

Justh H. L. * Justus C. G.
Evaluating Mars Science Laboratory Landing Sites with the Mars Global Reference Atmospheric Model (Mars-GRAM 2005) **[#9096]**
Mars-GRAM is an engineering-level atmospheric model widely used for diverse mission applications. Results of Mars-GRAM analysis of MSL landing sites will be shown as an example of Mars-GRAM as a valuable planning tool for future Mars missions.

Hollingsworth J. L. *
Summary of the Mars Climate Modeling Center (MCMC) Workshop **[#9123]**
We present a brief summary of the Mars Climate Modeling Center (MCMC) workshop that was held at the NASA Ames Research Center, Space Science and Astrobiology Division, 30 September through 2 October 2008.

Cianciolo A. D. * Way D. W. Powell R. W. Chen A.
Mesoscale Atmosphere Model Implementation into Mars Science Laboratory Performance Simulations **[#9039]**
The MSL guided entry faces challenges that require alternative methods for atmosphere modeling. A method for implementing mesoscale models into the MSL performance simulation is discussed as are the results and the EDL design implications.

Desai P. N. *
All Recent Mars Landers Have Landed Downrange — Are Mars Atmosphere Models Mis-predicting Density? **[#9103]**
All recent Mars landers have landed further downrange than predictions. Reconstruction of their entries revealed a lower density than a priori model predictions. Is there a systemic issue in Mars atmosphere models that predict a higher density?.

Ferri F. Lewis S. R. Ball A. J. Colombatti G. Aboudan A. Angrilli F. Müller-Wodarg I. Hathi B. Leese M. R. Zarnecki J. C. EDLS Science Team **(1-minute poster summary)**
ExoMars Entry and Descent Science **[#9010]**
The entry, descent and landing of ExoMars offer a rare opportunity to perform *in situ* investigation of the Martian environment over a wide altitude range. We present an initial assessment of the atmospheric science that can be performed.

De Angelis G. Badavi F. F. Blattnig S. R. Clowdsley M. S. Qualls G. D. Singleterry R. C. Jr. Wilson J. W. **(1-minute poster summary)**

Updated Time-Dependent Models for the Mars Radiation Environment **[#9011]**

Models for the radiation environment to be found on the planet Mars have been developed. Primary particles rescaled for Mars conditions are transported through the Martian atmosphere, with temporal properties modeled with variable timescales, down to the surface.

Marzo G. A. Lopez-Valverde M. A. Gonzales-Galindo F. **(1-minute poster summary)**

Cluster Analysis of Martian Atmospheric Temperature Profiles **[#9081]**

We apply the cluster analysis to pressure-temperature profiles of the MCD with the double goal of building a simplified climatology for Mars, and evaluating trends and potential biases in the current MCD, specially at mesospheric and thermospheric altitudes.

3:30 – 4:00 p.m. **BREAK**