Monday, November 10, 2008
MARS UPPER ATMOSPHERE
4:00 – 5:30 p.m.

Chair: M. A. Lopez-Valverde

Withers P. *
New Data Products from the Mars Odyssey Accelerometer: Report on Scientific Implications, Data Processing, Validation and Archiving **[#9035]**
New density profiles have been obtained from Mars Odyssey Accelerometer data acquired during aerobraking. Studies of small-scale structure caused by gravity waves, analysis of thermal tides, and comparisons to simulations will be reported.

Bougher S. W. * McDunn T. Forbes J. M.
Solar Cycle Variability of Mars Dayside Exospheric Temperatures: MTGCM Interpretation of MGS Drag Data **[#9064]**
The response of the Mars' exospheric temperatures to long-term solar flux changes was recently established using MGS drag data [Forbes et al. 2008]. New MGCM-MTGCM simulations are conducted to examine the key thermal balance processes responsible.

Huestis D. L. * Slanger T. G. Sharpee B. D. Cosby P. C. Fox J. L.
Analysis, Interpretation, and Modeling of Mars Dayglow Spectra **[#9071]**
Simultaneous analysis of data from the Mars Express and Mariner 6, 7, and 9 missions has better defined the altitude profiles of ultraviolet dayglow emissions, providing more demanding challenges to models of the Mars atmosphere from 80 to 200 km.

González-Galindo F. * Forget F. López-Valverde M. A. Angelats i Coll M. Millour E.
The Temperatures in the Thermosphere as Given by the LMD-MGCM: Variations and Comparisons with Data **[#9006]**
We use the LMD-MGCM, the first ground-to-exosphere Mars General Circulation Model, to study the temperature structure of the upper martian atmosphere, paying special attention to the different variability scales and to the comparison with available data.

Moudden Y. * Forbes J. M.
Non-Migrating Tides Connections with Topography and Surface Properties **[#9041]**
In this study we use a general circulation model in combination with the Mars Global Surveyor accelerometer measurements to isolate the different waves responsible for the observed density structures.

Lopez-Valverde M. A. * Gonzalez-Galindo F.
Fast Computation of CO_2 Cooling Rates for a Mars GCM **[#9085]**
We present a new parameterization of the radiative cooling rates by CO_2 at 15-micron in the martian atmosphere, specially designed to be implemented in Mars' global circulation models.

Espley J. R. Connerney J. E. C. Lillis R. J. **(1-minute poster summary)**
Effects of High Energy Astrophysical Events on the Martian Atmosphere **[#9110]**
We use results from a particle physics model to investigate the effects of gamma ray bursts on the martian atmosphere and compare those results to observations from the MAG/ER instrument on MGS.

Kutepov A. A. Feofilov A. G. Rezac L. Smith M. D. **(1-minute poster summary)**
Temperatures of Martian Atmosphere in the Altitude Region 60–100 km Retrieved from the MGS/TES Bolometer Infrared Limb Radiances **[#9070]**
We present retrievals of temperatures in the region 60–100 km from the TES limb thermal (5.5–100 μm) bolometer radiances for dust free atmospheric situations. The extension of retrieval technique on the dust storm conditions is discussed.

McDunn T. L. Bougher S. W. Murphy J. Smith M. D. Forget F. Bertaux J.-L. Montmessin F. **(1-minute poster summary)**

Structure and Dynamics of the 60–140 km Region on Mars **[#9060]**

This investigation utilizes the MEX/SPICAM dataset to validate and constrain the coupled multi-dimensional Mars General Circulation Model-Mars Thermosphere General Circulation Model (MGCM-MTGCM) at middle altitudes and explore the underlying physics governing these levels.

Lillis R. J. Bougher S. W. **(1-minute poster summary)**

Four Martian Years of Nightside Upper Thermospheric Mass Densities from Electron Reflectometry: Extending the Method to Northern Latitudes **[#9074]**

We present four martian years of neutral mass densities at 185 km altitude, derived from electron reflectometry, and compare with MTGCM predictions. Northern winter polar warming, as well as several "anomalous" events are reported.

Livengood T. A. Smith R. L. Kostiuk Th. Fast K. E. Maguire W. C. Hewagama T. **(1-minute poster summary)**

Probing the Temperature of Mars' Mesosphere **[#9124]**

Infrared heterodyne spectroscopy probing Mars' mesosphere in nadir viewing at high spectroscopic resolution.

Forbes J. M. Moudden Y. **(1-minute poster summary)**

Effects of Thermal Tides on the Mean Structure of Mars' Lower Thermosphere **[#9042]**

A general circulation model of Mars is used to elucidate the effects of thermal tides on the zonal mean density, temperature and wind structure between 90 and 160 km. The effects are substantial, and amount to order 10–40%, 10–30 K and 50–150 m/s, respectively.