

**Wednesday, July 11, 2007**  
**MODERN MARS: WEATHER, ATMOSPHERIC CHEMISTRY,**  
**GEOLOGIC PROCESSES, AND WATER CYCLE**  
**2:00 p.m. Beckman Auditorium**

**Chairs: R. W. Zurek**  
**L. K. Tamppari**

- 2:00 p.m. INTRODUCTORY REMARKS – FRAMING THE SESSION
- 2:05 p.m. Cantor B. A. \*  
*Present-Day Martian Weather — 5 Mars Years of Observations by MGS-MOC and MRO-MARCI* [#3063]  
 MOC and MARCI/CTX provide an opportunity to study martian weather phenomena, ranging from dust devils to dust storms to condensate clouds to the seasonal behavior of the polar caps, all on time scales ranging from diurnally to interannually.
- 2:20 p.m. McCleese D. J. \* Schofield J. T. Adou W. Aharonson O. Calcutt S. B. Irwin P. Kass D. M. Kleinboeh A. Leovy C. B. Lewis S. Paige D. A. Read P. L. Richardson M. I. Taylor F. W. Zurek R. W.  
*High Vertical and Temporal Resolution Observations of the Martian Atmosphere* [#3252]  
 Observations of the martian atmosphere made by the Mars Climate Sounder (MCS) onboard MRO reveal atmospheric structure not previously reported. This abstract reports findings related to atmospheric thermal structure and the distributions of dust and condensates.
- 2:35 p.m. McConnochie T. H. \* Smith M. D.  
*Limb-sounding of Aerosols with the Mars Global Surveyor Thermal Emission Spectrometer (TES)* [#3345]  
 We will present maps of dust and ice aerosol opacity as a function of latitude, longitude, altitude, and time for the entire period of TES mapping operations, with pole-to-pole coverage at local times of 2:00 p.m. and 2:00 a.m.
- 2:50 p.m. Krasnopolsky V. A. \*  
*High-Resolution Spectroscopy of the Martian Atmosphere from Ground-based Observatories: Some Recent Results* [#3052]  
 This is a review of the recent high-resolution spectroscopic observations of Mars from ground-based observatories. Observations of O<sub>3</sub>, H<sub>2</sub>O<sub>2</sub>, O<sub>2</sub> dayglow, CH<sub>4</sub>, CO, and isotope ratios in CO<sub>2</sub> are briefly discussed.
- 3:05 p.m. Fouchet T. \* Lellouch E. Ignatiev N. I. Forget F. Titov D. V. Tschimmel M. Montmessin F. Formisano V. Giuranna M. Maturilli M. Encrenaz T.  
*Martian Water Vapor: Mars Express PFS/LW Observations* [#3150]  
 We present the seasonal and geographical variations of the martian water vapor monitored from the Planetary Fourier Spectrometer Long Wavelength Channel aboard the Mars Express spacecraft.
- 3:20 p.m. BREAK
- 3:40 p.m. Haberle R. M. \* Montmessin F. Kahre M. A. Schaeffer J.  
*The Role of the North Residual Cap in the Present Mars Water Cycle* [#3161]  
 GCM's can reproduce the water cycle as observed by Viking and MGS. However, the water cycle now appears to be drier than indicated by these observations. A more accurate representation of the north residual cap is one way to dry out the water cycle.

- 3:55 p.m. Fenton L. K. \* Colaprete A. Smith M. D.  
*Surface Albedo Forcing of the Martian Water Cycle* [#3081]  
Atmospheric modeling suggests that albedo changes from dust fallout after the 2001 global dust storm caused an observed drop in atmospheric water vapor abundance during southern summer, thus establishing a new link between the dust and water cycles.
- 4:10 p.m. Barnes J. R. \* Tyler D.  
*Winter Weather on Mars: the Unique Southern Hemisphere* [#3094]  
The winter weather in the southern hemisphere of Mars is dramatically different than that in the north, due in sizeable part to the unique topography of Hellas. Observations and modeling studies of the southern weather regime are discussed.
- 4:25 p.m. Hollingsworth J. L. \* Kahre M. A. Haberle R. M.  
*Mars Dust: Atmospheric Effects of Large-Scale Extratropical Cyclogenesis and Frontal Waves* [#3235]  
This research focuses on large-scale extratropical cyclogenesis and frontal waves in the atmosphere of Mars, and their influences on atmospheric scalar quantities (e.g., temperature, wind components, dust mixing ratio, etc).
- 4:40 p.m. Kolb K. J. \* McEwen A. S. Gulick V. C. HiRISE Team  
*Bright Gully Deposits: Geological and Topographical Settings* [#3245]  
Bright gully deposits on Mars are thought to be signs of recent activity. We document their geologic settings and use these results to predict locations of future activity.
- 4:55 p.m. Bell J. F. III\*  
*Soil and Dust on Mars: Local Sources, Global Processes* [#3251]  
New information on the composition, mineralogy and physical properties of soil and dust on microscopic to orbital scales has revealed important new constraints on models of their origin and evolution.
- 5:10 p.m. MODERATED DISCUSSION