

**Monday, March 17, 2003**  
**SPECIAL SESSION**  
**MARS ODYSSEY: ONE YEAR OF SCIENCE AT MARS**  
**8:30 a.m. Salon B**

**Chairs: J. J. Plaut**  
**P. R. Christensen**

Plaut J. J. \* 2001 Mars Odyssey Team

*Mars Odyssey Science: The First Year and Beyond* [#1919]

The 2001 Mars Odyssey orbital science mission officially began in late February, 2002. This paper provides an overview of the mission's first year and a preview of future operations.

Zeitlin C. \* Cleghorn T. Cucinotta F. Saganti P. Andersen V. Lee K. Pinsky L. Atwell W. Turner R.

*Results from the Martian Radiation Environment Experiment MARIE* [#1878]

We will present results from the Martian Radiation Environment Experiment (MARIE). MARIE is aboard the 2001 Mars Odyssey spacecraft, measuring the charged particles that make up the Galactic Cosmic Rays and also those emitted in Solar Particle Events.

Cleghorn T. F. \* Saganti P. B. Zeitlin C. J. Cucinotta F. A.

*Solar Particle Events Observed by the Odyssey MARIE Instrument at Mars:*

*Dose and Model Calculations* [#1022]

This work describes the recent work on radiation dose analyses using data from the MARIE instrument on Odyssey. In particular, the solar particle events observed will be described, as well as comparisons between observations and model calculations.

Keating G. M. \* Theriot M. Jr. Tolson R. Bougher S. Forget F. Forbes J.

*Global Measurements of the Mars Upper Atmosphere: In situ Accelerometer Measurements from Mars Odyssey 2001 and Mars Global Surveyor* [#1142]

The paper discusses the discovery of winter polar warmings from the Mars Odyssey accelerometer, complementary measurements with the MGS accelerometer, upper atmosphere response to dust storms, planetary wave activity and latitudinal/seasonal variations.

Christensen P. R. \* Bandfield J. L. Bell J. F. III Hamilton V. E. Ivanov A. Jakosky B. M. Kieffer H. H.

Lane M. D. Malin M. C. McConnochie T. McEwen A. S. McSween H. Y. Jr. Moersch J. E.

Nealson K. H. Rice J. W. Jr. Richardson M. I. Ruff S. W. Smith M. D. Titus T. N.

*Early Results from the Odyssey THEMIS Investigation* [#1519]

The Mars Odyssey THEMIS thermal infrared and visible/near-IR multi-spectral images have been used to study geologic units and layers, the distribution of rocks, bedrock, sand, and dust, 100-m scale compositional variations, polar processes, and visible color and morphology.

Rogers D. \* Bandfield J. L. Christensen P. R.

*Global Bedrock Composition Mapping on Mars Using THEMIS and TES Data* [#2082]

Nighttime temperatures measured with THEMIS are used to locate exposed bedrock surfaces on Mars.

Corresponding daytime THEMIS images and TES emissivity spectra are used to determine a composition for these bedrock surfaces.

Hamilton V. E. \* Christensen P. R.

*Detailed Mineralogical Analyses of Martian Meteorite-like Terrains Using MGS TES and Odyssey THEMIS Data* [#1982]

New THEMIS infrared images show, in impressive detail, the distribution of previously identified martian meteorite-like materials. New details of the relationship between these materials and local geology will be presented.

Bell J. F. III\* McConnochie T. Wolff M. J. Christensen P. R. Mehall G. Malin M. Caplinger M. Ravine M. Cherednik L. L. Bender K. C. Murray K. THEMIS Science Team

*Color Imaging of Mars with the Visible Imaging Subsystem (VIS) on the Mars Odyssey THEMIS Instrument* [#1993]

The THEMIS Visible Imaging Subsystem (VIS) on the NASA Mars Odyssey orbiter is a five-color, 1024 × 1024 interline transfer CCD camera that acquires high spatial resolution 18 to 72 m/pixel multispectral images (425 to 860 nm) from Mars orbit.

Boynton W. V. \* Taylor G. J. Hamara D. Kerry K. Janes D. Keller J. Feldman W. Prettyman T. Reedy R. Bruckner J. Wanke H. Evans L. Starr R. Squyres S. Karunatillake S. Gasnault O.

*Compositional Diversity of the Martian Crust: Preliminary Data from the Mars Odyssey Gamma-Ray Spectrometer* [#2108]

Data are presented on Si, Fe, and K from the Mars Odyssey 2001 Gamma-Ray Spectrometer. The data show that Fe and Si are correlated, but with significant scatter. The regions suggested by Bandfield et al. (2000) to contain andesite is near regions found to be high in Si and K.

Reedy R. C. \* Evans L. G. Bruckner J. Kim K. J. Boynton W. V.

*Gamma Rays in a Spectrum from the Mars Odyssey Gamma-Ray Spectrometer* [#1592]

About 250 peaks and broad features were observed in a long spectrum from the Mars Odyssey Gamma-Ray Spectrometer, most of which have been identified. Many are background lines from Ge, Mg, Ti, Zn, and other elements near the GRS.

Taylor G. J. \* Boynton W. Hamara D. Kerry K. Janes D. Keller J. Feldman W. Prettyman T. Reedy R. Bruckner J. Wanke H. Evans L. Starr R. Squyres S. Karunatillake S. Gasnault O.

*Evolution of the Martian Crust: Evidence from Preliminary Potassium and Thorium Measurements by Mars Odyssey Gamma-Ray Spectrometer* [#2004]

Global data from the Mars Odyssey GRS show that K and Th are correlated and that their concentrations are higher than in Martian meteorites. This has implications for the compositions of the crust, bulk silicate Mars, and global dust.

Mitrofanov I. G. \* Litvak M. L. Kozyrev A. S. Sanin A. B. Tret'yakov V. I. Boynton W. V. Hamara D. K. Shinohara C. Saunders R. S. Drake D.

*Global Distribution of Shallow Water on Mars: Neutron Mapping of Summer-Time Surface by HEND/Odyssey* [#1104]

Observations of water ice rich regions of Mars are presented based on data from HEND(Mars Odyssey) for one year of mapping

Feldman W. C. \* Boynton W. V. Prettyman T. H. Kelly N. Maurice S. Mellon M.

*Growth of CO<sub>2</sub> Frost Thickness near Chasma Boreale During Northern Winter and Spring* [#1854]

This abstract reports new data from the Mars Odyssey Neutron Spectrometer about the time and spatial variation of CO<sub>2</sub> frost deposition near the north pole during northern late winter and spring.