

Tuesday, March 18, 2003  
 POSTER SESSION I  
 7:00 p.m. Fitness Center

**Mars Odyssey: One Year of Science at Mars**

Ferguson R. L. Christensen P. R.

*Thermal Inertia Using THEMIS Infrared Data* [#1785]

A method was developed to produce high-resolution thermal inertia maps using THEMIS night-IR temperature data. This technique provides information that allows improved quantitative studies of small surface features.

Mustard J. F.

*First Look at the Thermophysical Properties of the Dissected Mantle* [#2005]

A combined analysis of MOC and nighttime THEMIS images of a latitude-dependent surface layer is presented that provides insight into the physical properties of this climatically important surface layer.

Wyatt M. B. McSween H. Y. Jr. Moersch J. E. Gorelick N. S. Christensen P. R.

*THEMIS Observations of Low-Albedo Intracrater Materials and Wind Streaks in Western Arabia Terra* [#2009]

THEMIS day/night TIR images are used for thermophysical and spectral analyses of low-albedo intracrater materials and wind streaks and are compared with TES surface compositions and MOC observations to constrain origin hypotheses for these materials.

Lane M. D. Christensen P. R. THEMIS Science Team

*Investigating the Martian Gullies for Possible Brine Origin: A Preliminary Search for Evaporite Minerals Using THEMIS Data* [#1994]

Here we investigate the possibility of brine outflow forming the Martian gullies by using THEMIS data to search for the presence of evaporite minerals at the gully sites.

Zimbelman J. R. Bender K. C. Harris J. C.

*Geologic Mapping Applications Using THEMIS Data for the Medusae Fossae Formation, Mars* [#1390]

THEMIS daytime IR images are revealing a wealth of detail in the Medusae Fossae Formation along the equator of Mars. The extensive dust cover of this area enhances the visibility of shallow slopes through measurable temperature differences, revealing important new topographic details.

Glotch T. D. Christensen P. R.

*The Geology of Aram Chaos* [#2046]

Aram Chaos has a rich geologic history, including the formation of a crystalline hematite unit and a thermophysically unique cap unit. A model of the geologic history of Aram Chaos is presented.

Keller J. M. Boynton W. V. Taylor G. J. Kerry K. Janes D. M. Hamara D. Chamberlain M. A. Squyres S. W. Karunatillake S. Gasnault O. Mars GRS Team

*Preliminary Correlations of Mars GRS Elemental Abundances with Thermal Inertia, Albedo, and Rock Abundance* [#2021]

Preliminary correlations are presented between Mars GRS elemental abundances (water, silicon, potassium, iron, thorium, and chlorine) and planetary physical parameters (thermal inertia, albedo, and rock abundance).

Gasnault O. Maurice S. d'Uston C. Boynton W. V.

*Martian Gamma Albedo* [#1649]

We define and use a Martian gamma albedo measured by Odyssey. This dataset presents very good statistics. Using that parameter, we derive information on the transparency of the Martian atmosphere. Future works will try to monitor seasonal changes.

Evans L. G. Reedy R. C. Boynton W. V.

*Effects of Solar Particles on the Mars Odyssey Gamma-Ray Spectrometer* [#1591]

The Mars Odyssey Gamma-Ray Spectrometer is seriously affected by solar particle events (SPEs). The spectra are distorted by these energetic particles. Intensities of gamma-ray peaks are increased during and often after an SPE, and a few new peaks appear.

Litvak M. L. Mitrofanov I. G. Smith D. E. Zuber M. T. Boynton W. V. Saunders R. S. Drake D.

*Seasonal CO<sub>2</sub> Observations on North and South of Mars as Seen by HEND (Mars Odyssey) and MOLA (MGS)* [#1103]

The joint analysis of HEND and MOLA observations within the same latitude belts for the same Martian seasons is presented.

Tokar R. L. Moore K. R. Elphic R. C. Wiens R. C. Funsten H. O.

*Mars Odyssey Neutron Sensing of the South Residual Polar Cap* [#1628]

Mars Odyssey GRS neutron data in the vicinity of the South Pole is simulated to obtain bounds on the CO<sub>2</sub> thickness-density product covering the residual south polar cap. A lower bound of 150 g/cm<sup>2</sup> is found, or  $\sim 1.5 \times 10^{17}$  g of CO<sub>2</sub>.

Sanin A. B. Mitrofanov I. G. Kozyrev A. S. Litvak M. L. Tretyakov V. Smith D. E. Zuber M. T. Boynton W. V. Saunders R. S.

*The Enhancement of Water Ice Content in the Local Area Northeast from Arcadia Planitia: Evidence from Neutron Data from HEND (Mars Odyssey) and Elevation from MOLA (MGS)* [#1111]

The possible correlations are searched between epithermal neutron flux observed by HEND (Mars Odyssey) and elevation and CO<sub>2</sub> snow depth measured by MOLA (MGS).

Ivanov M. A. Litvak M. L. Mitrofanov I. G. Boynton W. Saunders R. S.

*Medusae Fossae-Elysium Region, Mars: Depression in the HEND/Odyssey Map of Mars Epithermal Neutrons* [#1105]

The data from the HEND instrument (Mars Odyssey) show a distinct depression in the flux of epithermal neutrons in the Medusae Fossae-Elysium Region. The depression is likely due to bound water and has been formed late in the geologic history of Mars.

Moore K. R. Tokar R. L. Elphic R. C. Lawrence D. J. Barraclough B. L. Funsten H. O.

*Remote Sensing of Water in the Valles Marineris Using Mars Odyssey Neutron Data* [#1960]

This study examines the epithermal neutron data from neutron spectrometer in Mars Odyssey Gamma Ray spectrometer for signatures of water in the Valles Marineris.

Kuzmin R. O. Mitrofanov I. G. Litvak M. L. Boynton W. V. Saunders R. S.

*Mars: Detaching of the Free Water Signature (FWS) Presence Regions on the Base of HEND/ODYSSEY Data and Their Correlation with Some Permafrost Features from MOC Data* [#1369]

Results of detaching of the free water signature areas on Mars on the base of the HEND/ODYSSEY data and analyses of their correlation with the polygonal terrains distribution are presented.

Basilevsky A. T. Litvak M. L. Mitrofanov I. G. Boynton W. Saunders R. S.

*Search for Chemically Bound Water in the Surface Layer of Mars Based on HEND/Mars Odyssey Data* [#1088]

The contents of chemically bound water in the majority of ice-free areas of Mars are higher than at the Viking/Pathfinder sites. Low epithermal neutron flux in Terra Arabia and SW of Olympus is due to even higher contents of chemically bound water.

Prettyman T. H. Feldman W. C. Boynton W. V. McKinney G. W. Lawrence D. J. Mellon M. T.

*Atmospheric Corrections for Neutrons Reveal Variations in Surface Composition in the Tharsis Region* [#1950]

Maps of neutron count rates measured by the neutron spectrometer on Mars Odyssey are corrected for spatial variations in atmospheric thickness to reveal the composition of the surface. Corrected maps of Tharsis are presented and interpreted.

Kim K. J. Drake D. M. Reedy R. C.

*Numerical Simulations of Cosmogenic Neutron Production and Transport in Planetary Surfaces* [#1532]

The code MCNPX was used to numerically simulate and to understand the physical processes in the interactions of cosmic rays with solar-system matter. The energy and depth distributions of neutrons in Mars and an L-chondrite were calculated.

Smith D. M.

*Estimating the Vertical Distribution of Near-Surface Ice Using the Comptonized Continuum from the Neutron-Capture Gamma-Ray Line* [#1530]

The 2.223 MeV gamma-ray line from neutron capture on hydrogen will Compton scatter in any overlying material before reaching an orbiting spacecraft such as Mars Odyssey. We discuss the use of the observed Compton continuum to constrain the depth profile of the near-surface ice.

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

*Heavy Ion Flux Comparison of MARIE and ACE/CRIS Instruments* [#1876]

We compare the data from Martian orbit to data from L1 to determine if any radial dependence of solar modulation can be detected.

Slavney S. Arvidson R. E. Guinness E. A.

*2001 Mars Odyssey Science Data Archives* [#1431]

In its first two data releases the 2001 Mars Odyssey Mission has delivered more than 200 gigabytes of data, which are now available online. The new PDS-D service provides the capability to search for and download user-selected data products.

Crombie M. K. Harshman K. P. McArthur G. K. Shinohara C. Boynton W. V.

*2001 Mars Odyssey Gamma-Ray Spectrometer Science Data Products* [#1671]

The Mars Odyssey Gamma-Ray Spectrometer is a suite of instruments working together to collect data that will permit mapping of elemental concentrations on the surface of Mars. These data are used to produce science data products for the PDS archives.

Murray K. C. Christensen P. R. Mehall G. L. Gorelick N. S. Harris J. C. Bender K. C. Cherednik L. L.

*2001 Mars Odyssey THEMIS Data Archive* [#1363]

The 2001 Mars Odyssey Thermal Emission Imaging System (THEMIS) standard data archive includes raw, calibrated, and derived images generated from the infrared and visible observations. Data is currently available online.

Gorelick N. S. Weiss-Malik M. Steinberg B. Anwar S.

*JMARS: A Multimission Data Fusion Application* [#2057]

Arizona State University has developed a software package that provides seamless integration across multiple Mars datasets including Odyssey THEMIS, MGS-MOC and MGS-MOLA.