

Thursday, March 18, 2004

MARS: RADAR, GAMMA RAY SPECTROMETER, AND CRATERING MINERALOGY  
1:30 p.m. Salon A

Chairs: K. W. Larsen  
L. G. Evans

- 1:30 p.m. Simões F. Trautner R. \* Grard R. Hamelin M.  
*The Dielectric Properties of Martian Soil Simulant JSC Mars-1 in the Range from 20Hz to 10kHz* [#1901]  
A laboratory facility has been setup to measure the complex permittivity of soil mixtures as a function of porosity, humidity, and temperature in the range 20 Hz–10 kHz. The influence of porosity and temperature are discussed, and a measurable gravimetric water content threshold is evaluated.
- 1:45 p.m. Paillou Ph. \* Farr T. G. Heggy E. Rosenqvist A.  
*Eastern Sahara Geology from Orbital Radar: Potential Analog to Mars* [#1210]  
We present the first radar mosaic of eastern Sahara that reveals unknown geology hidden under aeolian deposits: paleo-rivers, faults, impact craters. Such results demonstrate potentials of orbital imaging radar for Mars exploration.
- 2:00 p.m. Heggy E. \* Clifford S. M. Morris R. V. Paillou P. Ruffie G.  
*On the Dielectric Properties of the Martian-like Surface Sediments* [#1871]  
We have undertaken laboratory electromagnetic characterization of the total set of minerals identified by TES on the Martian surface in order to investigate experimentally the dielectric properties of the Martian sediments in the frequency range from 1 to 30 MHz.
- 2:15 p.m. Larsen K. W. \* Haldemann A. F. C. Jurgens R. F. Slade M. A.  
*Radar Observations of Recent Mars Landing Sites* [#1050]  
Terrestrial quadstatic interferometric radar observations of the Mars Exploration Rover Landing sites predict the rms slopes that will be seen upon landing. Use of early returned images are used to validate the data set for investigation of further regions of interest.
- 2:30 p.m. Jernsletten J. A. \* Heggy E.  
*Sounding of Subsurface Water Through Conductive Media in Mars Analog Environments Using Transient Electromagnetics and Low Frequency Ground-penetrating Radar* [#2089]  
The purpose of this study is to compare the use of (diffusive) Transient Electromagnetics (TEM) for sounding of subsurface water in conductive Mars analog environments to the use of (propagative) Ground-Penetrating Radar (GPR) for the same purpose.
- 2:45 p.m. Maurice S. \* Gasnault O. Feldman W. C. Prettyman T. H. Elphic R. C. Lawrence D. J.  
*Burial Depth of the Reservoirs of Hydrogen at the Equatorial Latitudes on Mars* [#1866]  
Burial depth of hydrogen at Mars mid-latitude. Show that burial depth below dust is a function of topography.
- 3:00 p.m. BREAK
- 3:15 p.m. Evans L. G. \* Starr R. D. Reedy R. C. Boynton W. V.  
*Elemental Composition Variations for Large Dusty and Rocky Regions on Mars Using Gamma-Ray Data from the Mars Odyssey Gamma-Ray Spectrometer* [#1258]  
Gamma-ray measurements from Mars Odyssey are used to study the elemental variations in composition for 7 large regions; 3 dusty regions and 4 rocky regions. Some of the variations are similar to those determined by Pathfinder for soil and rock, while others are different.

- 3:30 p.m. Boynton W. \* Janes D. Kerry K. Kim K. Reedy R. Evans L. Starr R. Drake D. Taylor J. Wänke H. d'Uston C.  
*The Distribution of Non-Volatile Elements on Mars: Mars Odyssey GRS Results [#1950]*  
Results of the Mars Odyssey GRS are presented for elements Si, Fe, Cl, K, and Th. We have used a new method of correcting the abundances of elements analyzed via thermal neutron capture reactions for changes in composition.
- 3:45 p.m. Taylor G. J. \* Boynton W. Wänke H. Dreibus G. Brückner J.  
*Using Mars Odyssey GRS Data to Assess Models for the Bulk Composition of Mars [#1808]*  
Global concentrations determined by the Mars Odyssey Gamma Ray Spectrometer allow us to test models for the bulk silicate composition of Mars. The data confirm that compared to Earth Mars is richer in volatile elements and FeO.
- 4:00 p.m. Basilevsky A. T. \* Rodin A. V. Kozyrev A. S. Mitrofanov I. G. Neukum G. Werner S. C. Head J. W. III Boynton W. Saunders R. S.  
*Mars: The Terra Arabia Low Epithermal Neutron Flux Anomaly [#1091]*  
We don't find links between the Arabia anomaly and its geology and topography but do find a link with the dust presence. It may be due to a preferential sink of dust and water from the atmosphere in places determined by global-scale stationary waves.
- 4:15 p.m. Hiesinger H. \* Head J. W. III  
*The Isidis Basin of Mars: New Results from MOLA, MOC, and THEMIS [#1167]*  
We report on the structure of the Isidis basin and the distribution of ridges. We found several types of ridges on the Isidis floor, which differ in morphology, size, and distribution. We discuss models for the formation of thumbprint terrain.
- 4:30 p.m. Tornabene L. L. \* Osinski G. R. Moersch J. E. Lee P.  
*Remote Sensing of the Haughton Impact Structure (HIS): A Terrestrial Proof of Concept for Using the Remote Sensing of Martian Craters as a Probe of Subsurface Composition [#1764]*  
The purpose of this study is to serve as terrestrial proof of concept that remote vis/infrared spectroscopic methods can be used to decipher the subsurface composition of planetary crusts via impact craters (to be specifically applied to Mars).
- 4:45 p.m. Wright S. P. \* Johnson J. R. Christensen P. R.  
*Thermal Emission Spectra of Impact Glass and Shocked Deccan Basalt from Lonar Crater, India and Implications for Remote Sensing of Mars [#2072]*  
Sample emission spectra of Deccan basalts and impact glasses from Lonar Crater, India, a rare terrestrial crater in basalt, are examined for insight into thermal infrared data of Mars collected by orbiters and rovers.