

Thursday, March 26, 2009
POSTER SESSION II: MARS: REMOTE SENSING
6:30 p.m. Town Center Exhibit Area

Bandfield J. L. Mayorga L. C. Edwards C. S. Glotch T. D.

[An Integrated Analysis of Martian Surface Compositions Using Near Infrared Through Thermal Infrared Spectroscopic Data](#) [#1072]

TES, THEMIS, and CRISM spectroscopic data are used to analyze sites of mineralogical interest on Mars. The combined wavelength coverage provides a more complete perspective of surface compositions and their formation processes.

Lane M. D. Glotch T. D. Dyar M. D. Bishop J. L. Pieters C. M. Klima R. Hiroi T. Sunshine J. M.

[Thermal Infrared Spectroscopy of a Synthetic Olivine Series \(Forsterite-Fayalite\) and Interpretation of the Nili Fossae, Syrtis Major, and Isidis Regions of Mars](#) [#2469]

Synthetic olivines in the forsterite to fayalite solid solution series were made (14 different Fo values) and their midinfrared spectra were applied to Mars. Olivine was mapped in the Nili Fossae, Syrtis Major, and Isidis basin regions.

Osterloo M. M. Hamilton V. E. Anderson F. S. Koeppen W. C.

[THEMIS Detections of Forsterite-Fayalite Compositions Within Terra Tyrrhena](#) [#1405]

The objective of this study is to determine if the Thermal Emission Imaging System (THEMIS) can detect variations in the Mg-Fe content of olivines on the martian surface. We have selected four sites within Terra Tyrrhena to conduct our analysis.

Tsang S. W. R. Eckert-Erdheim A. M. Williams L. H.

[Thermal Emissions Spectroscopy of Olivine](#) [#1206]

Many scientists have noticed the absorptions in olivine move closer to 0 wavenumbers as the Fe content increases, but no one has quantified this phenomenon. The model that we have created will enable scientists to determine Fo values remotely.

Nuding D. L. Cohen B. A.

[Characterization of Rock Types at Meridiani Planum, Mars Using MER 13-Filter Pancam Spectra](#) [#2023]

A database of Pancam spectra shows the diversity of rocks on Meridiani Planum. It is difficult to distinguish cobble groups with simple methods. We identified a group of possible meteorites near Eagle Crater that may be related to Heat Shield Rock.

Ashley J. W. Ruff S. W. Knudson A. T. Christensen P. R.

[Mini-TES Measurements of Santa Catarina-Type, Stony-Iron Meteorite Candidates by the Opportunity Rover](#) [#2468]

Most meteorites found on Mars can be regarded as witness samples for surface-volatile interactions. We report on the Mini-TES evaluation of 12 cobbles located near Victoria Crater, and conclude that at least three of these are similar to meteorite candidate Santa Catarina.

Schröder C. Ashley J. W. Chapman M. G. Cohen B. A. Farrand W. H. Fleischer I. Gellert R.
 Herkenhoff K. E. Johnson J. R. Jolliff B. L. Joseph J. Klingelhöfer G. Morris R. V. Squyres S. W.
 Wright S. P. Athena Science Team

[Santorini, Another Meteorite on Mars and Third of a Kind](#) [#1665]

The rock fragment Santorini is similar in chemical and mineralogical composition to two other fragments investigated earlier during Opportunity's mission. These rocks are of meteoritic origin and probably fragments of the same originally larger body.

Karunatillake S. Squyres S. W. Wray J. J. Taylor G. J. Gasnault O. McLennan S. M. Boynton W. El Maarry M. R. Dohm J. M.

[*Chemically Striking Martian Regions and Stealth Revisited*](#) [#1302]

The Mars Odyssey GRS chemical maps establish chemically striking regions. They represent the surface to tens of centimeter depths, complementing tens-of-micron sampling depths of infrared spectra. We discuss the one region that overlaps with classic Stealth.

Plaut J. J. Safaeinili A. Campbell B. A. Phillips R. J. Putzig N. E. Nunes D. C. Seu R.

[*A Widespread Radar-Transparent Layer Detected by SHARAD in Arcadia Planitia, Mars*](#) [#2312]

The subsurface sounder SHARAD on MRO has detected a widespread radar-transparent layer up to 50–90 m thick in the Arcadia region of Mars.

Stillman D. E. Grimm R. E. Harrison K. P.

[*The Anomalous Radar Transparency of Central Elysium Planitia and Amazonis Planitia*](#) [#2412]

The only ice-free rocky units that SHARAD has been successful at penetrating into are in Elysium and Amazonis Planitia. These are the youngest units on Mars and probably have low radar loss because they have been insufficiently exposed to water.

Mouginot J. Kofman W. Grima C. Safaeinili A. Plaut J. J.

[*Martian Surface Radar Reflectivity by MARSIS*](#) [#1546]

Martian radar surface reflectivity by MARSIS: Calibration — Simulation — Analysis.

De Angelis G. Dachev Ts. P. Semkova J. V. Maltchev S. Tomov B. Matviichuk Yu. Koleva R. Benghin V. Chernykh I. Shurshakov V. Petrov V.

[*Models for the Radiation Environment of Planet Mars and of Its Moon Phobos*](#) [#1308]

Models of radiation environment induced by Galactic Cosmic Rays (GCR) and Solar Particle Events (SPE) on Mars and Phobos have been developed, as well as for the mission cruise phase, and used for the Liulin-Phobos experiment onboard the Phobos-Soil mission.

Sefton-Nash E. Catling D. C. Wood S. E.

[*Developments in Deriving Best-Fit Thermal Inertia of the Surface of Mars Using THEMIS Images*](#) [#1773]

We improve the resolution and accuracy of derived thermal inertia of the martian surface by 1) Implementing a validity test for THEMIS images based on a thermal model and 2) Using HRSC topography to produce high resolution slope and azimuth data.

Ferguson R. L. Christensen P. R.

[*New View of the Martian Surface: THEMIS Global Thermal Inertia Mosaic*](#) [#1997]

We are generating a new global thermal inertia mosaic using THEMIS IR data at 256 m per pixel. This mosaic has facilitated an improved understanding of geologic processes acting on local scales, including the nature of moderate TI surfaces.

Edwards C. S. Bandfield J. L. Christensen P. R. Ferguson R. L.

[*Global Distribution of Bedrock and the Nature of the Upper Martian Crust*](#) [#2022]

THEMIS thermal inertia data were used to map the distribution of interpreted bedrock on Mars. Most of the instances are concentrated in the southern highlands and globally few instances were identified, indicating large scale crustal processing.

Piatek J. L.

[*Thermophysical Properties of Terrestrial Rock and Debris-covered Glaciers as Analogs for Martian Lobate Debris Aprons*](#) [#2127]

A survey of the thermophysical properties of terrestrial rock and debris-covered glaciers suggests these properties may be used to distinguish between massive debris-covered ice and intimate rock/ice mixtures in martian lobate debris aprons.