

Tuesday, March 20, 2012

POSTER SESSION I: MERCURY: COMPOSITIONAL REMOTE SENSING AND ANALYSIS

6:00 p.m. Town Center Exhibit Area

D'Amore M. Helbert J. Maturilli A. Head J. W. III Sprague A. L. Izenberg N. R. Holsclaw G. M. McClintock W. E. Vilas F. Solomon S. C.

[*Global Classification of MESSENGER Spectral Reflectance Data and a Detailed Look at Rudaki Plains*](#) [#1413]

We suppose that Mercury surface compositional information can be derived from spectral reflectance measurements of MESSENGER/MASCS via statistical techniques. Unsupervised hierarchical clustering successfully identify surface region and relationship.

Domingue D. L. Holsclaw G. M. Izenberg N. R. Vilas F.

[*Photometric Analysis of Selected Regions on Mercury from MESSENGER Orbital Observations of Spectral Reflectance*](#) [#2498]

Photometric analysis of MASCS observations provide corrections to surface spectral observations and give insight into the variations in photometric properties among difference surface units.

Domingue D. L. Vilas F. Travnicek P. M. Benna M. Schriver D. Sarantos M.

[*A Search for Latitudinal Variation in Space Weathering on Mercury's Surface*](#) [#1646]

Bombardment by charged solar wind particles contributes to space weathering of regoliths. Observations from MESSENGER indicate latitudinal variability in the surface ion flux, raising the possibility of latitudinal variability in spectral effects.

D'Incecco P. Helbert J. Head J. W. D'Amore M. Maturilli A. Izenberg N. R. Holsclaw G. M. Domingue D. L.

[*Kuiper Crater on Mercury — An Opportunity to Study Recent Surface Weathering Trends with MESSENGER*](#) [#1815]

The ~55–60-km-diameter, unusually fresh impact crater Kuiper displays one of the highest albedos of any area on the surface of Mercury and is thus an excellent candidate for an end member for the study of “space weathering” effects on Mercury.

Blewett D. T. Chabot N. L. Denevi B. W. Ernst C. M. Murchie S. L. Izenberg N. L. Xiao Z. Vaughan W. M. Head J. W. III Helbert J.

[*Spectral and Morphological Studies of Mercury's Hollows*](#) [#1329]

High-reflectance depressions found in and around impact structures on Mercury occur in several morphological types and in association with a dark global color unit. We compare spectra of Mercury surfaces with lab spectra of analog minerals.

Xiao Z. Strom R. G. Blewett D. T. Chapman C. R. Denevi B. W. Head J. W. Fassett C. I. Braden S. E. Gwinner K. Solomon S. C. Murchie S. L. Watters T. R. Banks M. E.

[*The Youngest Geologic Terrains on Mercury*](#) [#2143]

We have identified bright-haloed hollows, dark spots, and volcanic vents that appear to be younger than rayed craters.

Vilas F. Domingue D. L. Sprague A. L. Izenberg N. R. Klima R. L. Jensen E. A. Helbert J. D'Amore M. Stockstill-Cahill K. R. Solomon S. C.

[*Search for Absorption Features in Mercury's Visible Reflectance Spectra: Recent Results from MESSENGER*](#) [#1330]

MESSENGER visible reflectance data are searched for absorption features. Most reflectance spectra show no obvious absorption features. Subtle absorption features are seen in spectra of high-albedo material associated with younger features.

Greenspon A. S. Hibbitts C. A. Dyar M. D.

[Compositional Dependencies in Ultraviolet Reflectance Spectra of Synthetic Glasses Relevant to Airless Bodies](#) [#2490]

We characterize the reflectance UV spectra (130–400 nm) of synthetic glasses relevant to airless bodies and relate identifiable spectral features to the chemical composition of each sample. Spectra are taken under high vacuum.

Maturilli A. Helbert J. St. John J. D'Amore M.

[Visible-Infrared Reflectance and Emissivity Spectra of a Terrestrial Komatiite as a Guide to Observations at Mercury](#) [#1394]

From MESSENGER X-ray measurements, Mercury's crust is comparable to terrestrial komatiites. At the Planetary Emissivity Laboratory (PEL) we measured the VIS and IR spectra of a terrestrial komatiite sample under a range of environmental conditions.

Stockstill-Cahill K. R. McCoy T. J. Nittler L. R. Weider S. Z.

[Magnesium-Rich Compositions of Mercury: Implications for Magmatism from Petrologic Modeling](#) [#2107]

Petrologic modeling of Mercury's NVP and non-NVP compositions suggests eruption of low-viscosity, high-temperature magmas and reveals mineralogical variation between these two units.

Rhodes E. A. Peplowski P. N. Evans L. G. Hamara D. K. Solomon S. C.

[Element Abundances from MESSENGER's Gamma-Ray Spectrometer: Background Normalization](#) [#1555]

Element abundances from Mercury orbital gamma-ray spectrometer data will be presented, for Ca, S, and Al, and perhaps Fe and Cl. Data normalization methods used to derive these abundances will be described, particularly models of spacecraft background.

Starr R. D. Nittler L. R. Weider S. Z. Rhodes E. A. Schriver D. Schlemm C. E. II Solomon S. C.

[MESSENGER X-Ray Spectrometer Detection of Electron-Induced X-Ray Fluorescence from Mercury's Surface](#) [#1176]

X-ray emissions observed from the dark side of Mercury are the result of ~1–10 keV electrons impinging on the planet's surface. Knowledge of the precipitating electron distribution makes it possible to infer surface composition from the measured fluorescent spectra.

Meslin P.-Y. Déprez G.

[Radon Exhalation as a Possible Explanation to the Low Th/U Ratio Measured by MESSENGER GRS on Mercury](#) [#2800]

The Th/U ratio recently measured by MESSENGER GRS is puzzling, because it is much lower than its chondritic value. A possible explanation is an increase of the apparent uranium concentration measured by the GRS resulting from the outgassing of radon.