Monday, March 7, 2011
MERCURY
2:30 p.m. Waterway Ballroom 1

Chairs: **Debra Buczkowski**
Paul Lucey

2:30 p.m. Solomon S. C. * McNutt R. L. Jr. Bedini P. D. Anderson B. J. Blewett D. T. Evans L. G. Gold R. E. Krimigis S. M. Murchie S. L. Nittler L. R. Phillips R. J. Prockter L. M. Slavin J. A. Zuber M. T.
MESSENGER at Mercury: Flyby Accomplishments and Orbital Observing Plans **[#1781]**
MESSENGER's three Mercury flybys revealed a planet with a rich geological history and strong interactions among the solar wind, magnetosphere, exosphere, and surface. MESSENGER's year-long orbital operations are scheduled to commence this month.

2:45 p.m. Strom R. * Banks M. E. Chapman C. R. Fassett C. Forde J. Head J. Merline W. Prockter L. Solomon S.
Mercury Crater Statistics from Messenger Flybys: Implications for the Stratigraphy and Resurfacing History **[#1079]**
The primary crater population on Mercury has been modified by volcanism and secondary craters.

3:00 p.m. Buczkowski D. L. * Seelos K. D.
Mapping and Analysis of the Intra-Ejecta Dark Plains of Caloris Basin, Mercury **[#2157]**
The Caloris Basin on Mercury is floored by light-toned plains and surrounded by an annulus of dark-toned material interpreted to be ejecta blocks and smooth, dark, ridged plains. We outline the tasks associated with a new mapping project of these intra-ejecta dark plains.

3:15 p.m. D'Amore M. * Helbert J. Maturilli A. Domingue D. L. Izenberg N. R. Solomon S. C.
Composition of Surface Units on Mercury from Surface Reflectance Measurements During the First and Second MESSENGER Flybys **[#1381]**
MESSENGER/MASCS obtained spectra of Mercury, not yet photometrically corrected. We applied PCA, clustering, and a linear decomposition algorithm, aided by reflectance spectra from DLR/PEL in a MASCS-matching geometry, then shocked to a temperature >500°C.

3:30 p.m. Peplowski P. N. * Evans L. G. Blewett D. T. Denevi B. W. Lawrence D. J. Nittler L. R. Rhodes E. A. Solomon S. C.
Surface Abundances of K, Th, and U on Mercury and Implications for Planet Formation and Evolution **[#2290]**
Measurements made by the MESSENGER gamma-ray spectrometer during the Mercury flybys were used to calculate the surface K, Th, and U abundances. Comparisons to compositional models illustrate the ability of gamma-ray spectroscopy to contribute to geochemical analysis.

3:45 p.m. Stockstill-Cahill K. R. * McCoy T. J. Domingue D. L. Lawrence D. J. Nittler L. R. Peplowski P. N.
Low-FeO Silicates and Abundant Fe,Mg,Ti-Oxides: Indications from MELTS Modeling for a Complex Igneous History for Mercury **[#2339]**
Equilibrium and fractional crystallization MELTS models of potential parental magmas for the surface of Mercury were run. Results suggest that no single-stage melting of a chondritic precursor could have produced the surface of Mercury.

4:00 p.m. Fei Y. * Hillgren V. J. Shahar A. Solomon S. C.
On the Silicon Content of Mercury's Core and Implications for Core Mineralogy, Structure, and Density **[#1949]**
We use experimental Si partitioning data to explore a range of possible Si contents in Mercury's core. For a given Si content, we predict core structure. We further evaluate core size and moment of inertia from the computed density profiles.

4:15 p.m. Lucey P. G. * Riner M. A.
The Optical Effects of Small Iron Particles that Darken but do not Redden: Evidence of Intense Space Weathering on Mercury **[#1333]**
An improved radiative transfer model of space weathering is applied to Mercury that indicates that nanophase iron is more abundant on Mercury than on the Moon, consistent with a space weathering rate higher than lunar.

4:30 p.m. Siegler M. A. * Bills B. G. Paige D. A.
Long Term Climate Variability of Mercury's Poles **[#1882]**
The MESSENGER mission will provide an unprecedented look into the polar regions and their near subsurface. In anticipation, we examine long term orbital variations experienced by Mercury and the effects they might have on ice distribution.