Wednesday, March 20, 2013 **[W303]**
MERCURY SCIENCE FROM MESSENGER
8:30 a.m. Waterway Ballroom 5

Chairs: **Louise Prockter**
Carolyn Ernst

8:30 a.m. Weider S. Z. * Nittler L. R. Starr R. D. Solomon S. C.
The Distribution of Iron on the Surface of Mercury from MESSENGER X-Ray Spectrometer Measurements **[#2189]**
MESSENGER X-ray Spectrometer data reveal large spatial-scale variations in the total Fe content of Mercury's surface that may be related to surface elevation.

8:45 a.m. Nittler L. R. * Weider S. Z. Starr R. D. Crapster-Pregont E. J. Ebel D. S. et al.
Mapping Major Element Abundances on Mercury's Surface with MESSENGER X-Ray Spectrometer Data **[#2458]**
MESSENGER X-ray data are used to generate Mg/Si, Al/Si, S/Si, and Ca/Si maps of Mercury's surface. One high-Mg,S,Ca area correlates with the presence of hollows.

9:00 a.m. Evans L. G. * Peplowski P. N. Killen R. M. Potter A. E. Sprague A. L.
Variable Sodium on the Surface of Mercury: Implications for Surface Chemistry and the Exosphere **[#2033]**
We report evidence for spatial variation in the abundance of Na on Mercury's surface and the relationship to latitudinal variations in Mercury's Na exosphere.

9:15 a.m. Rivera-Valentin E. G. * Barr A. C.
Impact Induced Compositional Variations on Mercury: Implications for Primordial Interior Structure **[#1015]**
Monte Carlo modeling indicates mercurian LRM variation does not require crustal heterogeneities and its distribution is indicative of primordial composition.

9:30 a.m. Irving A. J. * Kuehner S. M. Bunch T. E. Ziegler K. Chen G. et al.
Ungrouped Mafic Achondrite Northwest Africa 7325: A Reduced, Iron-Poor Cumulate Olivine Gabbro from a Differentiated Planetary Parent Body **[#2164]**
Some mineralogical and bulk compositional features of this unique achondrite match known data for Mercury. Could this be a Hermean meteorite?

9:45 a.m. Perry M. E. * Kahan D. S. Barnouin O. S. Ernst C. M. Solomon S. C. et al.
Radio Frequency Occultations Show that Mercury is Oblate **[#2485]**
RF occultations measurements of Mercury's southern hemisphere show polar flattening, which has implications for rotational history and internal structure.

10:00 a.m. James P. B. * Zuber M. T. Solomon S. C. Phillips R. J.
Geophysical Constraints on Mercury's Physiographic Provinces **[#2042]**
We localize long-wavelength gravity and topography from MESSENGER. The results shed light on the structure and formation of Mercury's geological provinces.

10:15 a.m. Balcerski J. A. * Hauck S. A. II Sun P. Klimczak C. Byrne P. K. et al.
New Constraints on Timing and Mechanisms of Regional Tectonism from Mercury's Tilted Craters **[#2444]**
We combine MESSENGER profiles of tilted crater floors with morphology to establish age constraints for the formation of prominent regional features on Mercury.

10:30 a.m. Ernst C. M. * Denevi B. W. Murchie S. L. Barnouin O. S. Chabot N. L. et al.
Volcanic Plains in Caloris Basin: Thickness, Timing, and What Lies Beneath **[#2364]**
We show that the Caloris interior plains are at least 2.5 km thick, were emplaced within a short interval, and predated the large-scale tectonic modification.

10:45 a.m. Selvans M. M. * Watters T. R. James P. B. Zuber M. T. Solomon S. C.
Comparison of Tectonic Feature Locations and Crustal Thickness in the Northern Hemisphere of Mercury **[#2773]**
We compare maps of lobate scarps and high-relief ridges to crustal thickness on Mercury, and find no preferred crustal thickness values for their localization.

11:00 a.m. Byrne P. K. * Klimczak C. Blair D. M. Ferrari S. Solomon S. C. et al.
Tectonic Complexity Within Volcanically Infilled Craters and Basins on Mercury **[#1261]**
We describe the progression in tectonic complexity from some of the smallest to the largest volcanically infilled impact features on Mercury.

11:15 a.m. Johnson C. L. * Winslow R. M. Anderson B. J. Purucker M. E. Korth H. et al.
Induced Magnetic Fields at Mercury from MESSENGER Observations **[#1311]**
We investigate magnetic fields induced in Mercury's interior using MESSENGER magnetometer data.

11:30 a.m. Prockter L. M. * Murchie S. L. Solomon S. C. Nittler L. R. McNutt R. L. Jr. et al.
MESSENGER's Second Extended Mission: Exploring Mercury's Dynamic Magnetosphere and Complex Surface at Unprecedented Scales **[#2907]**
MESSENGER's second extended mission will begin in March 2013. Unprecedented observations are planned of Mercury's surface, dynamic magnetosphere, and exosphere.