

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

Gómez-Perez N. Wicht J.

[*Magnetic Field at Mercury: Effects of External Sources on Planetary Dynamos*](#) [#1634]

In Mercury, magnetospheric currents induce a magnetic field at the top of the core. We study dynamo simulations with the presence of an external field and find that fully convective cores result in weakened dipole fields.

Johnson C. L. Uno H. Purucker M. E. Anderson B. J. Korth H. Slavin J. A. Solomon S. C.

[*Mercury's Magnetic Field: Assessing the Effects of External Fields on Internal Field Models*](#) [#1385]

MESSENGER data confirm the presence of an intrinsic magnetic field at Mercury. Here we discuss several approaches to modeling magnetospheric fields, and the implications for assessing internal field structure and its origin.

Blewett D. T. Denevi B. W. Robinson M. S. Purucker M. E.

[*Do Lunar-like Swirls Occur on Mercury?*](#) [#1352]

Lunar swirls are unusual high-albedo markings. Mercury swirls were tentatively identified by Mariner 10. We examine potential swirls with MESSENGER, and consider the implications for the origin of swirls and the agent of space weathering.

Frigeri A. Federico C. Pauselli C. Coradini A.

[*Fostering Digital Geologic Maps: The Digital Geologic Map of Mercury from the USGS Atlas of Mercury. Geologic Series*](#) [#2417]

We present the digital geologic map of Mercury generated from the merge of the USGS Atlas of Mars, Geologic Series originally published by the USGS, and based on Mariner data. This single map offers several advantages over a series of distinct maps.

André S. L. Watters T. R.

[*Tectonic Features Revealed in MESSENGER Images Detailed Within Mariner 10 Stereo Topography*](#) [#2341]

Tectonic landforms were revealed in MESSENGER images within areas imaged by Mariner 10. Some of these landforms are recognizable in Mariner 10 derived stereo topography. We present topographic data for some newly identified tectonic features.

Barnouin-Jha O. S. Zuber M. T. Oberst J. Preusker F. Smith D. E. Neumann G. A. Solomon S. C.

Hauck S. A. II Phillips R. J. Head J. W. III Prockter L. M. Robinson M. S.

[*Assessing the Relationship Between Crater Depth and Diameter on Mercury with Topographic Measurements by MESSENGER*](#) [#1638]

Altimetry and imaging data acquired by the MErcury Surface, Space ENvironment, GEochemistry, and Ranging (MESSENGER) spacecraft allow reassessing the relationship between crater depth and diameter on Mercury.

Gillis-Davis J. J. Blewett D. T. Denevi B. W. Robinson M. S. Solomon S. C.

Strom R. G. MESSENGER Team

[*Pit-Floor Craters on Mercury: Characteristics and Modes of Formation*](#) [#2234]

We classify pit craters on Mercury into two categories on the basis of morphology and size: small irregular-sized pit craters and larger-sized, steep-sided pit craters. We conclude that differences in pit morphology relates to the mode of formation.

Fassett C. I. Head J. W. Blewett D. T. Chapman C. R. Dickson J. L. Murchie S. L.
Strom R. G. Watters T. R.

[Caloris Impact Basin: Exterior Geomorphology, Stratigraphy, Morphometry, Radial Sculpture, and Smooth Plains Deposits](#) [#1899]

MESSENGER data allow new consideration of the stratigraphy and geology of materials surrounding the Caloris basin. We discuss radial impact sculpture and secondaries associated with the basin, as well as the origin of the plains outside of its rim.

Izenberg N. R. Blewett D. T. McNutt R. L. Chabot N. L. Chapman C. R. Denevi B. W. Robinson M. S.
Prockter L. M. Murchie S. L.

[MESSENGER Views of Crater Rays on Mercury](#) [#1676]

High-reflectance crater materials and extensive ray systems are notable in imaging from MESSENGER's two Mercury flybys in 2008. These images provide the opportunity to make comparisons with lunar rays and Earth-based radar images of Mercury.

Domingue D. L. Denevi B. W. Ernst C. M. Holsclaw G. M. Izenberg N. R. McClintock W. E.
Murchie S. L. Robinson M. S.

[Regional Color Photometry of Mercury's Surface](#) [#1301]

Using images from both flybys of Mercury, the photometric properties of the planet in general, and of spectral units is examined.

Helbert J. D'Amore M. Maturilli A. Izenberg N. R. Sprague A. L. Holsclaw G. M. Head J. W.
McClintock W. E. Blewett D. T. Solomon S. C.

[Compositional Units on Mercury Along MESSENGER Ground Tracks from Principal Component Analysis of Spectral Observations](#) [#1529]

We have started analysis of the MESSENGER MASCS surface spectra using a principal component approach. The main goal of this analysis is to identify surface units along the ground tracks and characterize them.

Riner M. A. Lucey P. G. Desch S. J. McCubbin F. M.

[Opacities in Mercury's Crust: Additional Evidence for a Low-FeO Magma Ocean](#) [#2062]

Laboratory spectra of opaque oxides together with MESSENGER observations of Mercury's surface suggest Mercury's crust is not the lunar highlands, modified, but is a unique array of lithologies produced by crystallization of a low-FeO magma ocean.

Warell J. Sprague A. L. Kozlowski R. W. Helbert J.

[Surface Composition and Chemistry of Mercury: Hapke Modeling of MESSENGER/MASCS Reflectance Spectra](#) [#1902]

We present results of modeling of published MASCS/VIRS reflectance spectra from the first MESSENGER Mercury flyby using multicomponent mixtures with microphase iron in Hapke's radiative transfer model.

Warell J. Kozlowski R. W. Sprague A. L. Helbert J. Önehag A. Trout G. Rothery D.

[Ground-based Infrared Spectroscopy of Mercury's Near-Global Surface with IRTF/SPEX: Complementing MESSENGER Compositional Observations](#) [#1931]

Using SpeX at the NASA IRTF telescope we have obtained disk-resolved spectra of Mercury and lunar sites in the wavelength range 0.8–5.5 μm . These will be compared to MESSENGER data, searched for IR spectral features, and modeled to determine surface properties.

Kozyrev A. S. Gurvits L. I. Litvak M. L. Malakhov A. A. Mokrousov M. I. Mitrofanov I. G.
Rogozhin A. A. Sanin A. B. Owens A. Schvetsov V. N. Tretyakov V. I. Vostrukhin A. V.

[Studying Mercury Surface Composition by Mercury Gamma-Rays and Neutron Spectrometers \(MGNS\) from BepiColombo Spacecraft](#) [#1372]

MGNS instrument, selected for the payload of the BepiColombo mission, is shown to have necessary capabilities to characterize the elementary composition of subsurface layer of Mercury and to test the presence of water ice deposits at both polar regions of the planet.