

Tuesday, March 20, 2012

DIVERSE VIEWS OF THE LUNAR CRUST: AN ORBITAL PERSPECTIVE

8:30 a.m. Waterway Ballroom 4

Chairs: Paul Lucey
Joshua Cahill

- 8:30 a.m. Lucey P. G. * Greenhagen B. T. LRO Diviner Team
[*Lunary Mineral Maps Integrating Thermal and Near Infrared Multispectral Imaging*](#) [#1736]
Global lunar mineral maps were produced combining near-infrared and Diviner thermal infrared multispectral data for improved accuracy. Plagioclase, ortho- and clinopyroxene, and olivine maps at 2 km resolution were produced, as well as Mg number.
- 8:45 a.m. Song E. * Bandfield J. L. Lucey P. G. Greenhagen B. T. Paige D. A.
[*Bulk Mineralogy of Lunar Crater Central Peaks — Results from Diviner Lunar Radiometer*](#) [#2553]
A survey of CF values from the Diviner Lunar Radiometer Experiment has been performed for the central peaks of 135 complex craters on the Moon, providing global and regional observations of the heterogeneity of crustal compositions.
- 9:00 a.m. Donaldson Hanna K. L. * Cheek L. C. Pieters C. M. Mustard J. F.
Wyatt M. B. Greenhagen B. T.
[*Global Identifications of Crystalline Plagioclase Across the Lunar Surface Using M³ and Diviner Data*](#) [#1968]
An integrated NIR and TIR approach is used to identify the local and global distribution of crystalline plagioclase across the lunar surface and to determine its composition.
- 9:15 a.m. Cheek L. C. * Pieters C. M.
[*Variations in Anorthosite Purity at Tsiolkovsky Crater on the Moon*](#) [#2624]
In contrast to the highly pure (<2% pyroxene) anorthosite reported for numerous lunar highland craters, we present M³ data showing that the central peak of Tsiolkovsky Crater exposes a wide range of anorthosite mineralogy.
- 9:30 a.m. Yamamoto S. * Nakamura R. Matsunaga T. Ogawa Y. Ishihara Y. Morota T. Hirata N.
Ohtake M. Hiroi T. Yokota Y. Haruyama J.
[*Global Distribution Trend of Purest Anorthosite on the Moon Revealed by SELENE Spectral Profiler*](#) [#1356]
We report the global distribution trend and the modes of occurrence of purest anorthosite (PAN) on the Moon revealed by the Spectral Profiler onboard the Japanese lunar explorer SELENE (Kaguya).
- 9:45 a.m. Cahill J. T. S. * Blewett D. T. Nguyen N. V. Xu K. Lawrence S. J. Denevi B. W.
[*Determination of Iron Metal Optical Constants: Implications for Lunar Remote Sensing*](#) [#2215]
New measurements of the optical constants of Fe metal represent important improvements over previous data, and have significant implications for interpretation and Hapke modeling of lab and remote spectra of surfaces containing nano or macro iron.
- 10:00 a.m. Greenhagen B. T. * Thomas I. R. Bowles N. E. Allen C. C. Donaldson Hanna K. L.
Foote E. J. Paige D. A.
[*Compositional Ground Truth of Diviner Lunar Radiometer Observations*](#) [#2092]
Returned lunar soil samples from Apollo offer an unique opportunity to “ground truth” of Diviner Lunar Radiometer compositional interpretations. Here we compare Diviner observations of Apollo sites to laboratory measurements of Apollo soil samples.

- 10:15 a.m. Glotch T. D. * Greenhagen B. T. Lucey P. G. Bandfield J. L. Hayne P. O. Allen C. C. Elphic R. C. Paige D. A.
[Observations of Lunar Swirls by the Diviner Lunar Radiometer Experiment](#) [#1951]
 We have made daytime and nighttime measurements of lunar swirls with the Diviner Lunar Radiometer Experiment. Diviner data are consistent with the solar wind standoff mechanism for swirl formation.
- 10:30 a.m. Bussey D. B. J. * Schulze R. Jakowatz C. V. Nolan M. Jensen R. Turner F. S. Wahl D. E. Yocky D. A. Cahill J. T. S. Raney R. K. Patterson G. W. Mini-RF Team
[Bistatic Radar Observations of the Moon Using the Arecibo Observatory and the Mini-RF Instrument on LRO](#) [#2586]
 Using Arecibo as the transmitter and Mini-RF as the receiver we are collecting the first ever non beta-zero bistatic radar images of the Moon. These data provide new insight into volatiles, regolith and pyroclastic deposits.
- 10:45 a.m. Raney R. K. * Cahill J. T. S. Patterson G. W. Bussey D. B. J. Mini-RF Team
[Characterization of Lunar Craters Using M-Chi Decompositions of Mini-RF Radar Data](#) [#2676]
 LRO's Mini-RF S-band radar data set is used to better characterize lunar crater ejecta deposits and for the presence of water-ice using a new (to radar astronomy) method of polarimetric data analysis, known as an m-chi decomposition.
- 11:00 a.m. Litvak M. L. * Mitrofanov I. G. Sanin A. B. Boynton W. V. Chin G. Evans L. Harshman K. Droege G. Malakhov A. Milikh G. McClanahan T. Sagdeev R. Starr R.
[Global Maps of the Moon Neutron Flux from LEND Instrument Onboard LRO](#) [#2101]
 Latest neutron spectroscopy observations made by LEND onboard LRO mission during more than 1 year of mapping phase (started at September 2009) are used to create global maps of lunar neutron fluxes in different energy ranges.
- 11:15 a.m. McClanahan T. P. * Mitrofanov I. G. Boynton W. V. Chin G. Droege G. Evans L. G. Garvin J. Harshman K. Litvak M. L. Malakhov A. Livengood T. Milikh G. M. Nandikotkur G. Neumann G. Smith D. Sagdeev R. Sanin A. G. Starr R. D. Trombka J. I. Zuber M. T.
[Correlated Observations of Epithermal Neutrons and Polar Illumination Models from Orbital Neutron Detectors](#) [#2341]
 This paper is a correlative study of Illumination modeling derived from LOLA topography with Orbital Neutron Detectors: the Lunar Exploration Neutron Detector (LEND) and the Lunar Prospector Neutron Spectrometer (LPNS).
- 11:30 a.m. Ashley J. W. * Robinson M. S. Boyd A. K. Wagner R. V. Speyerer E. J. Hawke B. R. Hiesinger H. van der Bogert C. H. Burns K. Sato H.
[LROC Imaging of Thin Layering in Lunar Mare Deposits](#) [#2115]
 LROC NAC imaging is producing an emerging picture of widespread thin layering in lunar mare deposits from exposures in crater walls, steep-walled pits, and rilles. Layers 3 to 14 m thick are common, and may represent individual flows or flow lobes.