Wednesday, March 3, 2010
SPECIAL SESSION: A NEW MOON:
SPECTRAL CONSTRAINTS ON LUNAR CRUSTAL COMPOSITION
1:30 p.m. Waterway Ballroom 6

Chairs: Peter Isaacson
           Noah Petro

*Global Distribution of Lunar Silicates from the Diviner Lunar Radiometer [#2382]
The Diviner lunar radiometer has made the first direct global measurement of silicate mineralogy of
the lunar surface using multispectral thermal emission mapping. We have found exposures of unusual
lithologies and a lack of olivine-rich mantle materials.

*Bowles N. E. Wyatt M. B. Allen C. C. Donaldson Hanna K. L. Paige D. A. 
*Identification of Highly Silicic Features on the Moon [#1780]
Diviner has detected several features on the Moon with highly silicic compositions. These geologic
settings of these features suggest formation of highly evolved lithologies from both extrusive volcanic
and intrusive processes.

2:00 p.m. Lucey P. G. * Paige D. A. Greenhagen B. T. Bandfield J. L. Glotch T. D. 
*Comparison of Diviner Christiansen Feature Position and Visible Albedo: Composition and Space Weathering Implications [#1600]
Diviner finds that the Christiansen Feature is correlated with visible albedo. This indicates that terrains
of similar albedos share similar mafic mineral contents; major variations in Mg are not indicated.

2:15 p.m. Donaldson Hanna K. L. * Wyatt M. B. Paige D. A. Greenhagen B. T. Head J. W. Pieters C. M. 
*Lunar Mare Basalts: Insights Using Diviner Thermal Infrared Data [#2396]
Thermal infrared data from the Diviner Lunar Radiometer Experiment on the LRO is used to make
regional maps of derived compositions and thermophysical properties. In this preliminary study,
measurements of the lunar maria are analyzed to see what insight they provide.

2:30 p.m. Isaacson P. J. * Pieters C. M. Clark R. N. Head J. W. Klima R. L. Petro N. E. Staid M. I. 
Sunshine J. M. Taylor L. A. Thaïsen K. G. Tompkins S. 
*Remote Compositional Analyses of Lunar Olivine-rich Lithologies Using Moon Mineralogy Mapper (M3) Data [#1809]
We have applied techniques developed for laboratory spectra of lunar olivines to spectra collected by
M3. Our work suggests that the olivines analyzed to date are more Fe-rich than those in primitive
Mg-suite rocks from the Apollo collection.

2:45 p.m. Dhingra D. * Pieters C. M. Isaacson P. Staid M. Mustard J. Klima R. Taylor L. A. 
Kramer G. Nettles J. *M3 Team 
*Spectroscopic Signature of the High Titanium Basalts at Mare Tranquillitatis from Moon Mineralogy Mapper (M3) [#2494]
High-Ti basalts at Mare Tranquillitatis have been studied using M3 data to explore spectral effects of
ilmenite utilizing near IR properties. The results from Mare Tranquillitatis are compared with low-Ti
basalts at Mare Serenitatis.

3:00 p.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 of Olivine Exposures on the Moon Revealed by SELENE Spectral Profiler [#1646]
Here, we report the global distribution of olivine exposures, possibly originating from the lunar mantle
as discovered by Spectral Profiler onboard the Japanese lunar explorer SELENE (Kaguya).
3:15 p.m. Bugiolacchi R. * Mall U. Bhatt M. McKenna-Lawlor S.  
*A Fresh Look at the Copernicus Crater Central Peak Region Through High-Resolution NIR Data from the SIR-2 Instrument on Chandrayaan-1* [#1609]
We looked at the NIR reflectance spectral characteristics of surface materials in the central peaks region of the Copernicus crater using high spectral and spatial resolution data from the SIR-2 instrument on board of the Chandrayaan-1 lunar mission.

*Compositional Characteristics of the Aristarchus Crater from (M^3) Data* [#2000]
Aristarchus Crater, astride a mare-highland contact, exposes diverse mineralogy in a region of extensive rilles and dark mantle deposits. Here we show the first results of compositional diversity for Aristarchus Crater as seen from M^3.

*Global Distribution and Composition of Low-Ca Pyroxenes on the Moon as Viewed by the Moon Mineralogy Mapper* [#1485]
High spectral and spatial resolution Moon Mineralogy Mapper (M^3) data is enabling quantitative characterization of pyroxene composition on the lunar surface. We present results of a global survey of low-Ca pyroxenes, focusing on their Mg-Fe ratios.

4:00 p.m. Riner M. A. * Lucey P. G. Neumann G. A. Mazarico E.  
*Mapping Low-Calcium Pyroxene Using LOLA* [#2292]
LOLA is not commonly thought to be a mineralogic sensor, but its data can be used to map the relative abundance of magnesian low-calcium pyroxene through detection of changes in spectral reflectance with temperature.

*Progress Toward A New Lunar Optical Maturity Measure Based on Moon Mineralogy Mapper (M^3) Data* [#2217]
Efforts are ongoing to leverage the high spectral resolution and coverage of M^3 data to produce a new optical maturity index that better estimates the effects of space weathering on lunar spectra.

4:30 p.m. Hendrix A. R. * Vilas F. Retherford K. D. Gladstone G. R.  
*Ultraviolet Spectroscopy of the Moon: Clues About Composition and Weathering* [#2451]
We present results from a study combining several UV lunar data sets, including IUE, Galileo and LRO/LAMP, to investigate compositional variations and weathering effects across the surface of the Moon.