Thursday, March 15, 2007
LUNAR REMOTE SENSING, SPACE WEATHERING, AND IMPACT EFFECTS
1:30 p.m. Marina Plaza Ballroom

Chairs: **J. J. Gillis-Davis**
P. H. Schultz

1:30 p.m. Blewett D. T. * Hughes C. G. Hawke B. R. Richmond N. C.
Varieties of Lunar Swirls **[#1232]**
We investigate the optical properties of lunar swirls and examine the relationship between optical properties and magnetic field strength at various swirl locations.

1:45 p.m. Gillis-Davis J. J. * Lucey P. G. Hammer J. E. Wilcox B. B.
Syntheses and Reflectance Analyses of Lunar Red Glass Compositions: Information to Improve Understanding of Remotely Sensed Spectral Data **[#1443]**
We synthesize glasses of lunar-like compositions and oxygen fugacity to facilitate study of the relationship between the optical properties of "lunar" glass and FeO, TiO_2 concentrations and improve the ability to determine lunar surface compositions.

2:00 p.m. Hawke B. R. Giguere T. A. * Blewett D. T. Campbell B. A. Gillis-Davis J. J. Hagerty J. J. Lawrence D. J. Lucey P. G. Peterson C. A. Smith G. A. Spudis P. D. Taylor G. J.
Remote Sensing Studies of the Schiller-Schickard Region of the Moon: Final Results **[#1474]**
Clementine multispectral images, Lunar Prospector chemical data, and depolarized 70-cm radar images were used to investigate buried VLT and low-TiO_2 mare basalts in the Schiller-Schickard region.

2:15 p.m. Petro N. E. * Pieters C. M.
Foreign Material in the Lunar Regolith: Lateral Transport by Post-Basin Cratering **[#2069]**
We assess the cumulative lateral transport by post-basin craters 30–300 km in diameter. These craters distributed material across the entire Moon. The foreign component of the post-basin regolith is derived mostly from within 1000 km of any location.

2:30 p.m. Isaacson P. J. * Pieters C. M.
Spectroscopic Investigation of the Water Content of Lunar Soil **[#2070]**
To aid in the search for lunar water with remote sensors, the source of 3 μm features in lunar soil is investigated. Lunar soil was heated to remove water, and then analyzed by FTIR spectroscopy. Water remained in the sample after heating to 300°C.

2:45 p.m. Lawrence D. J. * Puetter R. C. Elphic R. C. Feldman W. C. Hagerty J. J. Prettyman T. H. Spudis P. D.
Global Spatial Deconvolution of Lunar Prospector Th Abundances Using the Pixon and Jansson Deconvolution Methods **[#1883]**
We have carried out a spatial deconvolution of global lunar thorium abundances using two methods: Pixon and Jansson. We conclude that the Pixon method produces significantly improved deconvolved maps, which we use to revisit geologically complex regions, such as the Aristarchus Plateau.

3:00 p.m. Schaler E. W. Purucker M. E. *
Lunar South Pole Hydrogen & Water Ice Deposits: Constraints from Lunar Prospector Magnetic Field Observations **[#1034]**
We find a positive correlation between high hydrogen presence and an elevated magnetic field over several south polar craters, including Shoemaker and Nobile. This correlation suggests that implanted hydrogen is not a significant hydrogen source.

3:15 p.m. Schultz P. H. *
A Possible Link Between Procellarum and the South-Pole-Aitken Basin **[#1839]**
The "Procellarum Basin" is proposed to represent offset antipodal effects from the formation of South-Pole-Aitken Basin by an oblique impact on the Moon. This process may account for the concentration of nearside maria, radial/concentric structures, and conduits for recent degassing events.

3:30 p.m. Nimura T. * Hiroi T. Pieters C. M.
An Improved Spectroscopic Model for Space Weathering Through the Formation of a Vapor Deposition Layer Containing Nanophase Reduced Iron Particles **[#2167]**
A new modeling approach for space weathering is introduced. The basic scheme of model is very simple and accounts for the actual structure of the particle which is covered with a vapor coating layer. The model can reproduce lunar soil spectra well.

3:45 p.m. Noble S. K. * Keller L. P. Stroud R. M.
Probing the Depths of Space Weathering: A Cross-Sectional View of Lunar Rock 76015 **[#1359]**
The use of FIB (focused ion beam) techniques for TEM sample preparation has allowed us to preserve the delicate stratigraphy of a patina coating on lunar rock 76015, providing a unique view into the space weathering process.

4:00 p.m. Ong L. * Asphaug E. Nimmo F. Korycansky D. Coker R.
Volatile Retention During Cometary Impact on the Moon and Mars **[#1433]**
Using a new modeling method we investigate the gravitational retention of volatiles released during cometary impact on the Moon and Mars as a function of impact velocity and atmospheric pressure.

4:15 p.m. Warren P. H. * Tonui E. Young E. D. Newman W. I.
Lunar Rock-Rain: Diverse Silicate Impact-Vapor Condensates in an Apollo-14 Regolith Breccia **[#2406]**
Apollo 14 breccia 14076 contains diverse silicate impact-vapor condensates: quenched-melt spheroids mostly <5 μm across, clasts up to 200 μm; all extremely low in refractory oxides. Spheroids have mg from 7–84 mol%, and FeO/SiO_2 (wt.) from 0.002–0.67.

4:30 p.m. Ozima M. * Yin Q.-Z. Seki H. Podosek F. Zahnle K.
Biotic Earth Wind as the Origin of Oxygen Isotope Anomalies in Contemporary Lunar Regolith **[#1129]**
Anomalous oxygen in lunar metal particles (Ireland et al., 2006) can be attributed to oxygen produced in the ozone layer, transported to the Moon, and does not contradict that the solar O-isotopic composition is the same as those in planets.