Thursday, October 23, 2014
LUNAR VOLATILES: CURRENT UNDERSTANDING II
8:30 a.m. Bldg. 200, Room 100

Chairs: **Noah Petro**
David Lawrence

8:30 a.m. Retherford K. *
LAMP Observations of Lunar Volatiles

8:50 a.m. Hayne P. O. * Hendrix A. Sefton-Nash E. Lucey P. G. Retherford K. D. Williams J.-P. Siegler M. A. Greenhagen B. T. Paige D. A.
Evidence for Exposed Water Frost in the Moon's South Polar Regions from LRO Ultraviolet Albedo and Temperature Measurements **[#3013]**
We use data from LRO Diviner and LAMP to show that the distribution of surface water frost appears to follow the coldest temperatures within the lunar polar cold traps.

9:10 a.m. Lucey P. G. * Neumann G. A. Smith D. E. Zuber M. T. Bussey D. B. Cahill J. T. Mazarico E. M. Paige D. A.
Lunar Polar Surface Frost: The View from LOLA **[#3015]**
LOLA shows that permanently shadowed regions are systematically more reflective than illuminated areas. Several percent water ice and increased porosity can account for the reflectance anomalies at 1064 and 122 nm.

9:30 a.m. Smith D. *
LOLA Observations of Lunar Volatiles

9:50 a.m. Siegler M. A. * Lucey P. Neumann G. Hayne P. O. Paige D. A. Greenhagen B. G.
Evidence for Surface Volatiles on the Moon and Mercury: A Planetary Comparison **[#3011]**
The Moon and Mercury both have shadowed regions featuring temperatures low enough to preserve water and other volatiles. We compare LRO and MESSENGER laser altimeter data sets to look for evidence of polar volatiles on these two solar system bodies.

10:10 a.m. Halekas J. S. * ARTEMIS Team
ARTEMIS Observations of the Space Environment Around the Moon and its Interaction with the Atmosphere and Surface **[#3016]**
ARTEMIS observations reveal both the effects of the plasma environment on the lunar surface and atmosphere, and the perturbations to the plasma environment caused by the presence of the Moon.

10:25 a.m. BREAK

10:40 a.m. Oliversen R. J. * Mierkiewicz E. J. Kuruppuaratchi D. C. P. Derr N. J. Gardner D. D. Lupie O. L. Roesler F. L.
High-Spectral Resolution, May 2013 Ground-Based Observations of the Lunar Sodium and Potassium Exosphere **[#3024]**
Fabry-Perot spectroscopy line profiles measurements of lunar exospheric Na D2 (5889.951 A) and K D1 (7698.965 A) emissions were obtained from the National Solar Observatory McMath-Pierce telescope during the May 2013 first to third quarter periods.

11:00 a.m. Farrell W. M. * Hurley D. M. Zimmerman M. I.
Solar Wind Implantation into Lunar Regolith: Hydrogen Retention in a Surface with Defects **[#3021]**
Hydrogen implantation and subsequent retention is found to highly dependent on both temperature and activation energy at the H-implantation/defect site. We specifically explore the latter variable herein using a statistical approach.

11:20 a.m. Zimmerman M. I. * Bussey D. B. J. Hurley D. M.
Can Solar Wind Volatiles Survive the Day Inside a Lunar Pit? **[#3012]**
We use a new three-dimensional illumination and heat diffusion code to characterize the daily heating cycle inside a lunar pit. This allows a detailed assessment of volatile stability in adjacent shadowed regions such as prospective lava tubes.

11:40 a.m. Stopar J. D. * Robinson M. S. Asphaug E. Jolliff B. L. Speyerer E. J. Christensen P. R.
In Search of Impact-Induced H_2O-Alteration Signatures: Initial Thermal Constraints **[#3030]**
Initial heat-transfer calculations suggest that polar ice can be melted and vaporized via impact-generated heating in the near-surface surrounding a crater. Water (liquid + gas) trapped in pore-spaces is available to form chemical alteration products.

12:00 p.m. DISCUSSION