Thursday, March 22, 2018
VOLATILES ON AND AROUND THE MOON
8:30 a.m.   Waterway Ballroom 1

Chairs: William Farrell
        Georgiana Kramer

8:30 a.m.  Li S. *   Lucey P. G.   Orlando T. M.
The Shielding Effect of Earth’s Magnetotail on the Formation of Lunar Surface Water [1575]
We found evidence for the magnetotail shielding effects on the formation of lunar surface water.

8:45 a.m.  Tucker O. J. *   Farrell W. M.   Killen R. M.   Hurley D. M.
Solar Wind Implantation into Lunar Regolith II: Monte Carlo Simulations of Hydrogen Retention in a
Surface with Defects and the Hydrogen (H, H2) Exosphere [2549]
We present results from Monte Carlo simulations of the diffusion of implanted solar wind H atoms and
the subsequently derived H and H2 exospheres.

9:00 a.m.  Honniball C. I. *   Lucey P. G.   Kaluna H. M.   Li S.   Sun L.   et al.
Lunar Surface Water: Latitude, Longitude Systematics, and Detection and Abundances at Small
Geologic Targets from Groundbased Telescopic Observations [1726]
Three micron groundbased observations of lunar surface water show latitude and time variations. Water
abundances were derived for small geologic features.

9:15 a.m.  Orlando T. M. *   Jones B.   Alexandrov A.   Hibbits C. A.   Dyar M. D.
Diurnal Variation of the Solar Wind-Induced Optical Signature of Water on the Lunar Surface [1660]
The diurnal and latitude dependence of the 2.8 micron optical signature of water on the lunar surface is
modeled utilizing OH formation and destruction rates.

9:30 a.m.  Patterson G. W. *   Prem P.   Stickle A. M.   Cahill J. T. S.   Mini-RF Team
Mini-RF S- and X-Band Bistatic Observations of South Polar Craters on the Moon [2007]
We present S- and X-band bistatic radar observations for the floors of the craters Cabeus and Amundsen
and discuss their potential for harboring water ice.

9:45 a.m.  Prem P. *   Patterson G. W.
Modeling the Potential Radar Scattering Characteristics of Water Ice at the Lunar Poles [2134]
Do Mini-RF observations of Cabeus Crater indicate subsurface water ice? We model radar scattering by
regolith with intermixed or buried ice to investigate.

10:00 a.m. Flom A. J. *   Kramer G. Y.
Water Retention in Mature and Immature Lunar Regolith [2054]
This study examines the retention of HOH/OH in lunar regolith over time by comparing the three micron
absorption features of mature and immature regolith in M3 data.

10:15 a.m. Farrell W. M. *   Hurley D. M.   Poston M. J.   Hayne P. O.   McLain J. L.
Cold Trapping of Lunar Polar Crater Volatiles: A Model of Desorption from Frosty Grains [2254]
We examine the desorption of water from a complex grain surface having micro-regions of thin ice
layers along with exposed regolith substrate.

10:30 a.m. Hurley D. M. *   Benna M.   Stubbs T. J.   Mahaffy P. R.   Elphic R. C.
LADEE NMS Observations of Exospheric Water Events at the Moon [2052]
We quantify the water released into the Moon’s exosphere from meteoroid impacts on the Moon using
data from LADEE NMS and models.
Observations of Lunar Exospheric Helium with LRO/LAMP [#2837]
The LAMP UV spectrograph on board of LRO studies the dependence on lunar helium on latitude, altitude, local time, and longitude.

Evidence for a Localised Source of the Argon in the Lunar Exosphere [#1893]
We test hypotheses for the lunar argon exosphere’s observed spatial and temporal variations. The mare ‘bulge’ in argon density requires a localised source.

11:15 a.m. McLain J. L. * Sarantos M. Johnson N. M. Keller J. W. Farrell W. M.
Laser Induced Thermal Desorption Measurements of Volatiles on Lunar Soils [#2651]
A LITD experiment has been designed to compare of desorption kinetics on various lunar soils to model residence times on the lunar surface and supply to PSRs.

11:30 a.m. Sefton-Nash E. * Greenhagen B. T. Williams J.-P. Paige D. A.
Differences in Far-IR Emissivity Between Permanently Shaded and Partially Illuminated Terrain at the Lunar South Pole [#2705]
PSR and non-PSR areas in Amundsen Crater show different emissive properties in the far-IR. Volatiles, low temperature processes, both?