**Wednesday, March 22, 2017 [W401]**
**A VOLATILE MOON: FROM THE INTERIOR TO THE SURFACE**
**8:30 a.m. Waterway Ballroom 1**

**Chairs:** **Paul Lucey**
**Debra Needham**

8:30 a.m. Nakajima M. * Hauri E. H.
*Initial Water Abundance of the Bulk Silicate Moon* **[#2858]**
We estimate the initial water abundance of the bulk silicate Moon based on the time evolution of the Moon-forming disk and the thermal structure of the disk.

8:45 a.m. Liu Y. * Guan Y. Barrat J.-A. Taylor L. A.
*Contrasting Water Chemistry in Howardites and Lunar Regolith Breccias* **[#1543]**
Comparative study of surface water in howardites and lunar regolith breccias reveals different origins of water on the surface of 4 Vesta and the Moon.

9:00 a.m. Simon J. I. * Christoffersen R. Wang J. Alexander C. M. O'D. Mills R. D. et al.
*Low to Extremely Low Water Abundances Measured in Nominally Anhydrous Minerals in Mafic to Granitic Apollo Rock Clasts* **[#1248]**
We report low to extremely low water contents in nominally anhydrous minerals contained in mafic to granitic ancient lunar rock clasts.

9:15 a.m. Mosenfelder J. L. * Caseres J. R. Hirschmann M. M.
*A Comprehensive SIMS Study of Hydrogen, Fluorine, and Chlorine in Nominally Anhydrous Minerals from 15 Lunar Samples* **[#2473]**
Water in the Moon / Wasn't where you thought it was / How about fluorine?

9:30 a.m. DiFrancesco N. J. * Nekvasil H. Lindsley D. H.
*The Effect of Degassing of a Cl-Rich, OH-Poor, Lunar Magma on the Nature of Vapor Deposits and Residual Magma Chemistry and Mineralogy* **[#1589]**
Moon's KREEPy chlorine / A source for metal halides? / In the regolith.

9:45 a.m. Needham D. H. * Kring D. A.
*Volatiles Released During Emplacement of Mare Basalts: Implications for a Lunar Atmosphere* **[#1192]**
This study presents the mass of erupted lunar volatiles as a function of time to determine whether a more substantial atmosphere existed early in lunar history.

10:00 a.m. Hurley D. M. * Hendrix A. R. Farrell W. M. Retherford K. D. Cahill J. T. S. et al.
*Simulations of Lunar Hydration Mobility and Sources* **[#1986]**
Simulations of hydration migration in the lunar exosphere constrained by observations of diurnally varying surface abundance from LAMP and exospheric detection.

10:15 a.m. Hendrix A. R. * Hurley D. M. Farrell W. M. Retherford K. D. Greathouse T. K. et al.
*Diurnally-Varying Lunar Hydration* **[#2149]**
Diurnally-varying spectra are observed in LRO LAMP far-UV data of the Moon, interpreted to be due to changing hydration levels in the topmost regolith grains.

10:30 a.m. Schwadron N. A. * Wilson J. K. Jordan A. P. Looper M. D. Zeitlin C. et al.
*Sensing Diurnal Hydrogenation of Lunar Regolith Using Proton Radiation from the Moon* **[#1728]**
First evidence of the diurnal dependence of lunar hydrogenation based on observations of protons coming directly from the hydrogenated material in the regolith.

10:45 a.m. Protopapa S. * Sunshine J. M. Farnham T. L. Feaga L. M. A'Hearn M. F.
*Temporal and Spatial Variability of Lunar Hydration as Observed by the Deep Impact, Part II: The South Pole* **[#2853]**
Analysis of the lunar hydration using Deep Impact data after applying a new calibration, including not previously analyzed observations of the south pole.

11:00 a.m. Mitchell J. L. * Lawrence S. J. Robinson M. S. Speyerer E. J. Denevi B. W.
*Searching for Water Ice at the Lunar North Pole Using High-Resolution Images and Radar* **[#2481]**
Is it blocks or ice / In lunar polar craters? / For sure there are blocks.

11:15 a.m. Li S. * Milliken R. E. Lucey P. G. Fisher E.
*Possible Detection of Surface Water Ice in the Lunar Polar Regions Using Data from the Moon Mineralogy Mapper ($M^3$)* **[#2505]**
Ice absorption bands of $M^3$ data were assessed to detect possible ice deposits in the lunar polar regions. LOLA, Diviner, and Mini-RF data were also examined.

11:30 a.m. Bandfield J. L. * Poston M. J. Klima R. L. Edwards C. S.
*A Prominent and Ubiquitous OH/$H_2O$ Feature in Corrected Lunar Spectra* **[#2083]**
New thermal corrections of $M^3$ data result in a prominent 2.95 μm absorption (interpreted as $H_2O$) at all latitudes and local times.