Thursday, March 26, 2009
POSTER SESSION II: CHEMICAL AND PHYSICAL PROPERTIES OF THE LUNAR REGOLITH
6:30 p.m. Town Center Exhibit Area

Spudis P. D. Taylor G. J.
A Major KREEP-Basalt — Mare Basalt Unconformity on the Moon **[#1039]**
The Station 2 boulder at Apollo 15 preserves a major 500 Ma unconformity between early Imbrian-age non-mare KREEP basalts and late Imbrian-age mare basalt. These samples may represent a paleoregolith, an ancient regolith preserved between two lava flows on the Moon.

McKay D. S. Cooper B. L. Riofrio L. M.
New Measurements of the Particle Size Distribution of Apollo 11 Lunar Soil **[#2051]**
We have initiated a major new program to determine the grain size distribution of nearly all lunar soils collected in the Apollo program. The use of a laser diffraction instrument improves upon previous work using sieving.

Johnson J. R. Shepard M. K. Paige D. A. Foote E. J. Grundy W.
Spectrogoniometric Measurements and Modeling of Apollo 11 Soil 10084 **[#1427]**
Laboratory visible/near-infrared multispectral goniometer observations of Apollo 11 soil 10084 were acquired using the Bloomsburg University Goniometer to provide constraints on Hapke radiative transfer models for comparison to lunar analog soils.

Seddio S. M. Jolliff B. L. Korotev R. L. Zeigler R. A.
A Newly Characterized Granite from the Apollo 12 Regolith **[#2285]**
The newly characterized lunar sample 12032,366-19 is a pristine lunar granite with a unique texture and mineral assemblage and no impact-generated glass or brecciated material.

Johnson D. Jolliff B. Zeigler R. Carpenter P.
Distribution of Ti in Glass and Mineral Components of Lunar Soils 10084 and 71501; Grain Size Fraction 100 to 210 μm **[#2346]**
The grain size and shape of ilmenite and the distribution of Ti in components of Apollo 11 and Apollo 17 soils are discussed.

Seddio S. M. Korotev R. L. Jolliff B. L. Zeigler R. A.
Petrographic Diversity in Apollo 12 Regolith Rock Particles **[#2415]**
A set of 52 lithic fragments of the Apollo 12 regolith are analyzed to understand the petrographic diversity that the site contains focusing on regolith breccias, KREEP impact-melt breccias and other high-Th samples, and basalts.

Ling Z. C. Wang A. Jolliff B. L. Li C. Liu J. Bian W. Ren X. Mu L. Su Y.
Raman Spectroscopic Study of Quartz in Lunar Soils from Apollo 14 and 15 Missions **[#1823]**
Quartz, a rare but important mineral indicator for Moon, is detected from soil 14163 and 15273 by Raman point-count procedures. The two major Raman peaks of quartz show considerable red shift, indicating different shock effect on these grains.

Isaacson P. J. Pieters C. M. Klima R. L. Hiroi T. Sarbadhikari A. B. Liu Y. Taylor L. A.
The Lunar Rock and Mineral Characterization Consortium (LRMCC): Integrated Analyses and Mineral Endmembers from Mare Basalts **[#1821]**
The LRMCC has conducted coordinated mineralogy/petrology and spectroscopy analyses of four lunar basalt samples and associated mineral separates. The dataset provides key ground truth and constraints on spectral mixing and space weathering models.

Nemchin A. A. Pidgeon R. T. Grange M. L.
REE Patterns in Lunar Zircons **[#1509]**
Zircon grains from breccia sample 14321 show significant REE variation, indicating that these zircons formed in the rocks with a wide compositional range.

Yakovlev O. I. Gerasimov M. V. Dikov Yu. P.
Temperatures of Formation of HASP and GASP Particles **[#1261]**
Comparison of chemical composition of HASP glasses and GASP particles with compositions of residual melt and corresponding equilibrium vapor for lunar mare basalt show correlation to experimental data at ~1870°–1650ºC and mass loss in the range 20–50%.

Edmunson J. Cohen B. A. Spilde M. N.
Characterizing the Effect of Shock on Isotopic Ages I: Ferroan Anorthosite Major Elements **[#2094]**
Ferroan anorthosites 62236 and 67075 do not show major element mobility due to shock in microprobe analysis. The shock pressure of 67075 is estimated at <50 kilobars.

Sharp Z. D. Shearer C. K. Jr. Barnes J. D.
The Chlorine Isotope Composition of the Moon **[#2351]**
The chlorine isotope composition of leached pyroclastic glass (Apollo 17) were measured using gas source mass spectrometry and found to be -0.74‰ (vs. SMOC), different from bulk Earth (0‰). The Cl bulk concentration is 80 ± 20 ppm.

ten Kate I. L. Glavin D. P. VAPoR Team
Evolved Gas Analysis of Two Lunar Simulants, Apollo 16 Regolith and a Carbonaceous Meteorite (Murchison) Using VAPoR **[#2232]**
Volatile Analysis by Pyrolysis of Regolith (VAPoR) on the Moon using mass spectrometry is one technique that should be considered for *in situ* analysis of lunar regolith. Here we present evolved gas analysis data obtained with the VAPoR breadboard.