

Monday, March 17, 2003

**SOUTH POLE-AITKEN SAMPLE RETURN: CAPSTONE, KEYSTONE, CORNERSTONE  
8:30 a.m. Salon A**

**Chairs: J. Longhi  
J. J. Gillis**

Pieters C. M. \* Duke M. Head J. W. III Jolliff B.

*Science Options for Sampling South Pole-Aitken Basin* [#1366]

Selecting samples from the enormous SPA basin to meet the primary NRC science objectives can be easily accomplished with current data about the basin. Specific site selection(s) can then also include several exciting secondary science options.

Duke M. B. \*

*Challenges for Sample Return from the Lunar South Pole-Aitken Basin* [#1684]

Sample return from the South Pole-Aitken Basin is a high priority objective for planetary science. Lessons taken from the review of a previous proposal will help define a competitive mission for the NASA New Frontiers Program.

Lawrence D. J. \* Pieters C. M. Elphic R. C. Feldman W. C. Gasnault O. Maurice S. Prettyman T. H.

*Regional Elemental Abundances Within South Pole-Aitken Basin as Measured with Lunar Prospector Gamma-ray Spectrometer Data* [#1679]

We use LP-GRS data to determine that the composition of non-mare materials within SPA basin is consistent with interpretations of Clementine data that characterize these materials as noritic breccias derived from the lower crust or mantle after removal of the anorthositic upper crust.

Haskin L. A. \* Gillis J. J. Jolliff B. L. Korotev R. L.

*Regolith in the South Pole-Aitken Basin is Mainly Indigenous Material* [#1434]

Ejecta deposit modeling shows that 80% of the material in the regolith of the South Pole-Aitken basin is material that originated from within the basin, thus a mission to a well-chosen site within the basin is likely to yield a meaningful sample of SPA floor material.

Jolliff B. L. \* Haskin L. A. Korotev R. L. Papike J. J. Shearer C. K. Pieters C. M. Cohen B. A.

*Scientific Expectations from a Sample of Regolith and Rock Fragments from the Interior of the Lunar South Pole-Aitken Basin* [#1989]

Integrated studies of the geochronology, geochemistry, mineral chemistry, and petrology of many small rock fragments in a lunar regolith sample can address the fundamental questions that are posed for a South Pole-Aitken Basin sample return mission.

Gillis J. J. \* Jolliff B. L. Lucey P. G.

*South Pole-Aitken Sample Return Mission: Collecting Mare Basalts from the Far Side of the Moon* [#2065]

Using Clementine and Lunar Prospector data we consider the probability that a sample mission to a site within the South Pole-Aitken Basin would return basaltic material and be the first opportunity to sample basalts from the far side of the Moon.

15-MINUTE DISCUSSION PERIOD