Tuesday, March 18, 2003
LUNAR SCIENCE: REGIONAL, SAMPLE, GEOIDAL
1:30 p.m. Salon A

Chairs: B. R. Hawke
C. R. Neal

Poitrasson F. * Halliday A. N. Lee D. C. Levasseur S. Teutsch N.
Iron Isotope Evidence for Formation of the Moon Through Partial Vaporisation **[#1433]**
The isotopic composition of iron in lunar samples is heavy relative to the Earth, which is itself heavier than meteorites from Mars and Vesta. This may be the imprint of planetary partial vaporisation during the Giant Impact that led to the formation of the Moon.

Warren P. H. * Humphrys T. L.
Bulk Composition of the Moon as Constrained by Thorium Data: Comparison of Lunar Prospector Versus Apollo GRS Results **[#2034]**
We integrated Lunar Prospector-GRS data, as calibrated by Lawrence et al. [2000], for 38 regions defined by the Apollo GRS team. For Th-poor (farside + limb) highland regions, the LP-GRS Th calibration is systematically higher by 0.88 ± 0.11 µg/g.

Lucey P. G. * Steutel D.
Global Mineral Maps of the Moon **[#1051]**
Using a Hapke-based spectral analysis model and Clementine UVVIS data, we have produced global mineral maps of the Moon.

Hawke B. R. * Blewett D. T. Bussey D. B. J. Giguere T. A. Lawrence D. J. Lucey P. G. Smith G. A. Spudis P. D. Taylor G. J.
Geochemical Anomalies in the Lunar Highlands **[#1198]**
Lunar Prospector elemental abundance data were used to identify and investigate geochemical anomalies in the lunar highlands. Five mafic anomalies were found to correspond to cryptomare deposits.

Zeigler R. A. * Haskin L. A. Korotev R. L. Jolliff B. L. Gillis J. J.
The Apollo 16 Mare Component: Petrography, Geochemistry, and Provenance **[#1454]**
We present the petrography and geochemistry of five new Apollo 16 mare basalt fragments and discuss the likely provenances (through lateral post-basin mixing) of all mare basalts found at the Apollo 16 site using Clementine-derived global TiO_2 and FeO.

Zellner N. E. B. * Spudis P. D. Delano J. W. Whittet D. C. B. Swindle T. D.
Geochemistry and Impact History at the Apollo 16 Landing Site **[#1157]**
Impact glasses from the Apollo 16 landing site have been geochemically analyzed and compared to Clementine orbital data. A subset of these glasses has been dated and is used to interpret the lunar impact history at the Apollo 16 landing site.

Hagerty J. J. * Shearer C. K. Papike J. J.
Trace Element Characteristics of Minerals in the Apollo 14 High-Al Basalts: Implications for an Igneous Versus an Impact Origin **[#1773]**
SIMS analyses of trace elements in plagioclase and olivine grains from the Apollo 14 high-Al basalts have shown that these basaltic fragments were not produced as a result of impact melting.

James O. B. * Cohen B. A. Taylor L. A.
Lunar Meteorite Dhofar 026: A Shocked Granulitic Breccia, Not an Impact Melt **[#1149]**
Detailed study of the texture of Dhofar 026, and comparison to textures of Apollo samples 15418 and 60017, indicate that Dhofar 026 is a shocked granulitic breccia in which post-shock temperature was well above the solidus and extensive partial melting took place.

Korotev R. L. * Jolliff B. L. Zeigler R. A. Haskin L. A.

Compositional Evidence for Launch Pairing of the YQ and Elephant Moraine Lunar Meteorites **[#1357]**

We show that there is no compositional impediment to the hypothesis that the YQ lunar meteorites, Yamato 793274/981031 and QUE 94281, are launch paired with EET 87521/96008. EET is heterogeneous because it is a breccia derived from a differentiated magma body.

Takeda H. * Saiki K. Ishii T. Otsuki M.

Mineralogy of the Dhofar 489 Luanr Meteorite, Crystalline Matrix Breccia with Magnesian Anorthositic Clasts **[#1284]**

Dhofar 489, a crystalline matrix feldspathic breccia gives the mg# of mafic silicates higher than those of FAN trend in the An vs. mg# diagram, but D489 does not show granulitic texture. We examine the origin of this magnesian anorthosite.

Liang Y. * Hess P. C. Cherniak D. J.

Decoupling of REE in Plagioclase and Orthopyroxene in the Lunar Ferroan Anorthosite **[#2006]**

Due to their large differences in the diffusion rates, REE in the plagioclase and orthopyroxene can be significantly decoupled during lunar magmatic processes.

Wieczorek M. A. *

The Thickness of the Lunar Crust: How Low Can You Go? **[#1330]**

Recent analyses of the Apollo seismic data suggest that the crust is significantly thinner (~30 to 40 km) than originally suggested (~60 km). It is shown that crustal thickness inversions and GTRs are consistent with these new seismic constraints.

Neal C. R. * Lawrence D. J. Banerdt W. B.

A Future Moon Mission: The Lunar Seismic Network **[#2052]**

A seismic network is proposed for the Moon. In this mission, it is envisaged that a minimum of eight seismometers will be deployed around the Moon.