Monday, March 15, 1999
LUNAR VOLCANOS: FROM THE INSIDE OUT
8:30 a.m.  Room B

Chairs:  C. Coombs
G.A. Snyder

Warren P. H.* Ulff-Møller F.

*Lunar Meteorite EET96008: Paired with EET87521, but Rich in Diverse Clasts [1450]*
We have studied the bulk composition and petrology of the EET96008 lunar meteorite. This fragmental breccia is nearly pure VLT mare basalt and paired with EET87521. However, the sample is rich in diverse clasts, e.g., highland impact melt breccia.


*Lunar Meteorite EET 96008, Part II: Whole-Rock Trace-Element and PGE Chemistry, and Pairing with EET 87521 [1705]*
Mineral-chemical and trace-element data on the “new” lunar meteorite EET 96008 suggest pairing with EET 87521 and indicate little affinity with VLT mare basalt.

Shih C.-Y.* Nyquist L. E.  Bogard D. D.  Reese Y.  Wiesmann H.  Garrison D.

*Rb-Sr, Sm-Nd and 39Ar-40Ar Isotopic Studies of an Apollo 11 Group D Basalt [1787]*
Rb-Sr, Sm-Nd and 39Ar-40Ar age data for Apollo 11 Group D basalt 10002,1003 will be presented. Its source isotopic composition will be discussed.

Neal C. R.* Jain J. C.  Snyder G. A.  Taylor L. A.

*Platinum Group Elements from the Ocean of Storms: Evidence of Two Cores Forming? [1003]*
PGE data are presented for 7 Apollo 12 basalts to investigate the PGE budget of their source regions.

Elkins L. T.* Grove T. L.

*Origin of Lunar Ultramafic Green Glasses: Constraints from Phase Equilibrium Studies [1035]*
The compositional variability displayed in Apollo 14 and 11 green glasses was produced by fractional crystallization of olivine and orthopyroxene combined with assimilation of sunken high-Ti lunar magma ocean cumulates at 440 km depth.

Papike J. J.* Fowler G. W.  Adcock C. T.  Shearer C. K.

*Systematics of Ni and Co in Olivine from Planetary Melt Systems: Lunar Mare Basalts [1006]*
Olivine Co/Ni systematics in Apollo 12 basalts were studied by SIMS and correlated with EMP data. Our results, along with previous studies, show that (12009) was extruded onto the lunar surface and is parental to five other cumulates (12075,-020,-018,-040,-035).

McKay G. A.* Le L.

*Partitioning of Tungsten and Hafnium Between Ilmenite and Mare Basaltic Melt [1996]*
Early results from an experimental study of W partitioning between ilmenite and melt suggest that ilmenite has significant capacity to fractionate W from Hf.

Hess P. C.* Parmentier E. M.

*Asymmetry and Timing of Mare Volcanism [1360]*
Mare volcanism is long-lived but unevenly distributed in space and time. The cumulate overturn model helps to explain the longevity, the sparse volcanic output, the timing and possibly the nearside-farside asymmetry in mare volcanism.

Zhong S.* Parmentier E. M.  Zuber M. T.

*Early Lunar Evolution and the Origin of Asymmetric Distribution of Mare Basalts [1789]*
We demonstrate that the hemispheric asymmetry in the distribution of mare basalts may be explained as a result of instability of the ilmenite cumulate layer above the metallic core, as long as the metallic core is relatively small.
Hiesinger H.*   Head J. W. III   Jaumann R.   Neukum G.
Lunar Mare Volcanism [#1199]
We present lunar mare basalt ages and relate them to the titanium concentration. We also provide volume estimates and discuss the influence of crustal thickness on basalt eruptions.

Remote Sensing Studies of Ancient Mare Basalt Deposits [#1956]
The purposes of this report are to examine the way that multiple data sets were used to investigate ancient lunar volcanism and to present the most recent results of our studies of cryptomare using Galileo, Clementine, and Lunar Prospector data.

Gillis J. J.*   Spudis P. D.
Preflow Structure and Topography Controlling Mare Basalt Flows [#2019]
Remote sensing observations of how preflow structure and topography influence the process of rille formation. Volcanic features examined within the Orientale and Australe basin support rille formation as primarily a constructional process.

Clark P. E.*   Evans L.
Determining Lunar Titanium Abundance on the Basis of Combined Remote Sensing Techniques [#1824]
Lunar Ti derived from Apollo gamma-ray and Clementine spectral reflectance are compared, both showing unimodal distribution. CSR Ti values are correlated with bulk Fe estimates, an effect now noted for all spectral reflectance derived Ti maps.