Monday, March 17, 2003
LUNAR BASALTS: DEEP INSIGHTS
10:15 a.m. Salon A

Chairs: J. Longhi
J. J. Gillis

Rutherford M. J. * Papale P.
Eruption Conditions and Mechanism of A17 Orange Glass Eruption: Petrology and Modeling Data **[#1322]**
The gas phase in the A17 orange glass magma is constrained by C-O-S phase equilibria and the compositions of glass and phenorysts. Equilibrium C-O gas generation by C-oxidation is at 4 km. Modeling constrains the C necessary to achieve fragmentation of the orange glass melt prior to eruption.

Longhi J. *
Green Glasses: New Pressure Calibration, New Ascent Mechanism, New Calculations, Same Story **[#1528]**
New melting experiments have demonstrated pressure intensification in $BaCO_3$ pressure assemblies. Also, a new model for run-away dike propagation raises the possibility of rapid magma transport directly from deep source regions.

Shearer C. K. * Neal C. Draper D. Papike J. J. Agee C.
Melting in the Deep Lunar Mantle **[#1456]**
We focus upon both the trace element characteristics of mare basalts and pyroclastic glasses and the high pressure (>2.5 GPa) phase equilibria of several pyroclastic glass compositions.

Walker R. J. * Horan M. F. Shearer C. K. Papike J. J.
Osmium Isotope and Highly Siderophile Element Compositions of Lunar Orange and Green Glasses **[#1579]**
Abundances of highly siderophile elements (HSE) in lunar orange and green glasses are highly variable. The most fractionated HSE patterns, relative to chondrites, probably most closely represent the indigenous lunar compositions. Most samples analyzed contain a meteoritic component.

Morgan Z. T. * Liang Y. Hess P. C.
Fractionation of Eu from Other REE by Melt-Rock Reaction in the Lunar Mantle **[#1031]**
We modeled a dense LMO melt descending by porous flow through earlier harzburgite cumulates on the moon and found large fractionation of Eu from the rest of the REE in the metasomatized cumulates.

Beck A. R. * Hess P. C. Liang Y.
Metasomatising the Lunar Mantle with TiO_2-rich Melts: A Disequilibrium Porous Flow Model **[#1040]**
Our model investigates the ability of a TiO_2-rich melt to fertilize lunar mantle cumulates via disequilibrium porous flow. We found that partial melts of these metasomatised cumulates display chemical signatures unlike those of the picritic glasses.