Thursday, March 16, 2006
POSTER SESSION II: MARTIAN METEORITES:
ALTERATION, ATMOSPHERES, AND APPLICATIONS
7:00 p.m. Fitness Center

Stopar J. D. Taylor G. J.
Martian and Lunar Meteorites: Styles of Aqueous Alteration **[#1652]**
A preliminary analysis of the different styles of aqueous alteration found in martian and lunar meteorites. We study the terrestrial alteration of lunar meteorites as an analog for aqueous alteration on Mars.

Sefton-Nash E. Anand M. Dobson D. Vocadlo L. Williams T.
The Oxygen Balance of Primordial Mars: Oxygen Fugacity of Selected SNC Meteorites, Sub-Surface H_2O Inventory, the Martian Fe^{3+}/Fe^{2+} Ratio and the Implications for Biogenic Influences **[#1748]**
The oxygen balance of primordial mars: oxygen fugacity of selected SNC meteorites, sub-surface H_2O inventory, the martian Fe^{3+}/Fe^{2+} ratio and the implications for biogenic influences.

Herd C. D. K.
Fractionation of K, U and Th During Martian Aqueous Alteration: Insights from MIL 03346 **[#2079]**
In support of a Borehole Gamma Ray Spectrometry Concept Study, the distribution of K, U and Th were examined in the MIL 03346 martian meteorite. Preliminary results show that K is heterogeneously distributed among igneous and alteration phases.

Rost D. Vicenzi E. P. Fries M.
A Host for Lithium in MIL03346 and Implications for Aqueous Alteration on Mars **[#2362]**
In nakhlites, poorly crystalline clays formed by aqueous alteration on Mars show the highest Li contents. The finding of likewise enriched olivine in the MIL03345 mesostasis revokes the need for sources outside the nakhlitic flow(s) as explanation.

Fries M. Mysen B. Vicenzi E. Rost D. Steele A.
Hydrated Phosphates in Nakhlite MIL 03346 **[#2267]**
Phosphate minerals in MIL 03346 are found both as platy grains within the mesostasis and within inclusions in cumulate pyroxene crystals. These phosphates are hydrated but unsaturated in H_2O and contain a significant fraction of bound hydrogen.

Kennedy J. D. Harvey R. P.
Petrology and Mineral Chemistry of the Antarctic Ferrar Dolerite: Implications for Martian Meteorites **[#1689]**
The Ferrar dolerite provides an excellent terrestrial analog to martian igneous lithologies and surficial processes. These rocks are exposed to some of the coldest, driest conditions on Earth, and display similar weathering features found on Mars.

Walton E. L. Spray J. G. Herd C. D. K.
Melting Rocks by Shock: Localized Shock Melting in Martian Meteorites and Target Rocks from the Manicouagan Impact Structure **[#2025]**
Localized shock melting in lherzolitic shergottites have been compared to naturally shocked rocks from the Manicouagan impact structure. Manicouagan may provide important links that enable us to place the development of *in situ* shock melting in a spatial context within an impact crater.

Bérczi Sz. Hegyi S. Hudoba Gy. Józsa S. Szakmány Gy.
Planetary Analog Metarials Studies: Martian Shergottites and Their Counterparts from the Szentbékkálla Series of Mantle Lherzolite Inclusions and the Host Basalts in Hungary **[#1122]**
Several petrographic and genetic characteristics of the host basalt and its ultramafic inclusions of Szentbékkálla, Balaton Mts., Hungary are analogs to the range of the basaltic, picritic or olivine-phyric, and lherzolitic or peridotitic shergottites.

Nekvasil H. McCubbin F. Filiberto J.
Terrestrial Ferropicritic Dunites: Implications for the Chassignites **[#1096]**
Terrestrial ferropicritic analogs to the chassignites crystallized primarily at low pressure in spite of the presence of kaersutite and Ti-biotite. The chassignite mineralogy is more consistent with a higher pressure crystallization history.

Anand M. Russell S. S. Blackhurst R. Grady M. M.
Fe Isotopic Composition of Martian Meteorites and Some Terrestrial Analogues **[#1824]**
We report Fe isotopic composition of seven martian meteorites and other terrestrial materials that may be considered martian analogues.

Filiberto J. Nekvasil H. McCubbin F. Lindsley D. H.
Are Terrestrial Ferropicrites Analogues of Martian Rocks? **[#1081]**
The ferropicrites may represent close terrestrial analogues to the SNC meteorites. Their crystallization history, associated lithologies, and tectonic environment may provide invaluable information about Martian magmatic history.

McCubbin F. Nekvasil H. Lindsley D. Filiberto J.
The Chemical Nature of Kaersutite Experimentally Produced at 0 kbar **[#1097]**
Fluor-oxykaersutite with fluorine contents ranging from 3.5 wt% to 2 wt% was crystallized at 0 kbar. This suggests that kaersutite is stable over a wide pressure range and that its presence does not imply elevated crystallization pressure.

Norris J. R. Herd C. D. K.
The Yamato 980459 Liquidus at 10 to 20 Kilobars **[#1787]**
Piston-cylinder runs at pressures in the 10–20 kbar range give a liquidus for the Y980459 composition that is approximately 100°C less than previous work.

Beck P. Ferroir T. Gillet P. Montagnac G. Bohn M. Lesourd M.
Shock-Melting of Martian Basalts and the Entrapment of Atmospheric Gases **[#1939]**
We suggest here that melt pockets, which are commonly observed in shergottites, were formed by shock-induced melting of pre-existing porosity.

Park J. Nagao K.
New Insights on Martian Atmospheric Neon from Martian Meteorite, Dhofar 378 **[#1110]**
This is the first report of a reliable $^{20}Ne/^{22}Ne$ ratio obtained from a unique Martian meteorite Dhofar 378. The Ne shows clear evidence of very low $^{20}Ne/^{22}Ne$ ratio (7.3±0.1) for the present-day Martian atmosphere.

Parente M. Bishop J. L.
Deconvolution of Reflectance Spectra Using Nonlinear Least Squares Curve Fitting: Application to Martian Meteorites **[#1535]**
We present a novel spectral deconvolution model based on the description of absorption bands due to electronic transition processes in continuum-removed spectra. The model allowed discrimination of highly overlapping mineral bands in martian meteorites.

Head J. N.
Martian Meteorites and Cosmic Ray Exposure: Constraints on the Role of In-Space Breakup Events **[#1870]**
The number of martian meteorite (MM) launch events can be estimated from the cosmic ray exposure (CRE) and ages. Known CRE histories for MMs are difficult to reconcile with in-space breakup events. MM CRE ages are likely indicative of launch events.