Thursday, March 20, 2003
POSTER SESSION II
7:00 p.m. Fitness Center

Martian Meteorites: We Come in Pieces

Corrigan C. M. Harvey R. P.
Evidence for a Second Generation of Magnesite in Martian Meteorite Allan Hills 84001 **[#1255]**
Evidence shows that magnesite found in contact with the hi-Ca portion of carbonate slabs in ALH84001 may be the result of yet another generation of carbonate growth in the rock.

Koziol A. M.
Magnetite-Magnesioferrite Phase Relations and Application to ALH84001 **[#1128]**
Magnesioferrite ($MgFe_2O_4$) or magnetite + MgO may form from decarbonation of siderite-magnesite. This depends on temperature and fO_2. For ALH84001, formation of magnetite ± MgO via decarbonation reactions would require low fO_2 (near mt-wü).

Lauer H. V. Jr. Ming D. W. Golden D. C.
Thermal Analysis of Acicular Shaped Magnetite **[#1341]**
Acicular magnetite formed from well-crystalline goethite heated under reducing condititons has been analyzed in a controlled atmosphere DSC/EGA system. We report on the effect of formation temperature on the measured thermal parameters of the acicular magnetite.

Grady M. M. Wright I. P.
Carbon Reservoirs on Mars: Constraints from Martian Meteorites **[#1312]**
We have measured the abundance and stable isotopic composition of magmatic carbon extracted from a suite of shergottites. The results confirm previous findings that primordial carbon on Mars is isotopically lighter than that of the Earth.

Bailey J. V. McKay D. S. Wentworth S. J.
Mn Carbonates in the Martian Meteorite Nakhla: Possible Evidence of Brine Evaporation **[#2060]**
This study presents SEM and EDS analysis of a compositionally and texturally complex carbonate from the Mars Meteorite Nakhla. Models and constraints of its petrogenesis are presented.

Mikouchi T. Koizumi E. Monkawa A. Ueda Y. Miyamoto M.
Mineralogical Comparison of Y000593 with Other Nakhlites: Implications for Relative Burial Depths of Nakhlites **[#1883]**
We studied Y000593 and other four nakhlites and found that there is a correlation between the mesostasis abundance and mineral compositions and sizes, probably reflecting relative burial depths in the same cumulate pile.

Misawa K. Shih C.-Y. Wiesmann H. Nyquist L. E.
Crystallization and Alteration Ages of the Antarctic Nakhlite Yamato 000593 **[#1556]**
We present Rb-Sr and Sm-Nd isochron data for Yamato 000593 and discuss the age correlation with other nakhlites and the timing of aqueous alteration on Mars. The concordancy of Sm-Nd and Rb-Sr ages suggests that Y000593 crystallized 1.30 Ga ago.

Dreibus G. Huisl W. Spettel B. Haubold R.
Comparison of the Chemistry of Y-000593 and Y-000749 with Other Nakhlites **[#1586]**
The two paired Martian meteorites Y-000593 and Y-000749 have a similar chemical composition as found for Nakhla and Lafayette. However, the Cl and Br concentrations are much lower than in Nakhla but close to those in Lafayette.

Szymanski A. Brenker F. E. El Goresy A. Palme H.
Complex Thermal History of Nakhla and Y000593 **[#1922]**
The thermal history of Nakhla and Y000593 was studied by applying several geo-thermometers and by studying microstructures with TEM. Evidence for a two stage cooling history is obtained.

Delaney J. S. Dyar M. D.
Comparison of Synchrotron microXANES Determination of $Fe^{3+}/\Sigma Fe$ with Mössbauer Values for Clean Mineral Separates of Pyroxene from Martian Meteorites **[#1979]**
Measurements of ferric/ferrous ratios by synchrotron microXANES have been checked against Mössbauer results for mneral seperates with good results. The significance of ferric contents in pyroxene remains to be interpreted.

Fritz J. Greshake A. Stoeffler D.
Launch Conditions for Martian Meteorites: Plagioclase as a Shock Pressure Barometer **[#1335]**
To define the p/T launch window for martian surface rocks the final equilibration shock pressure of 16 martian meteorites was estimated. We used the shock pressure dependent reduction of the refractive index for maskelynite as a pressure barometer.

Schwenzer S. P. Mohapatra R. K. Herrmann S. Ott U.
Nitrogen and Heavy Noble Gases in Sands That Hosted Sayh Al Uhaymir 008 in the Oman Desert **[#1694]**
We have studied N, Kr, and Xe in soil from the Oman desert. The results bear on the acquisition of low temperature noble gases during weathering in hot deserts.

Guan Y. Hsu W. Leshin L. A. Wang H. Wang R. Zhang F. Lin C. Zhang W.
Hydrogen Isotopes of Phosphates in the New Martian Meteorite GRV 99027 **[#1830]**
Water in GRV 99027 phosphate grains yields high and variable D/H ratios that are consistent with previous analyses of apatite in martian meteorites, confirming GRV 99027 as the fourth known lherzolitic shergottite.

Park J Okazaki R. Nagao K.
Noble Gas Studies on Martian Meteorites : Dar Al Gani 476/489, Sayh Al Uhaymir 005/060, Dhofar 019, Los Angeles 001 and Zagami **[#1213]**
We report the concentrations and isotopic ratios of noble gases of DaG 489, SaU 005/060, DHO 019, LA 001 and Zagami. Based on ^{81}Kr-Kr apparent ages, the long terrestrial ages of DaG 476 and DHO 019 are also calculated. The concentrations of ^{80}Kr produced by neutron capture from Br were calculated.

Irving A. J. Kuehner S. M.
Petrology of NWA 1460: A Baddeleyite-bearing Shergottite Paired with NWA 480 **[#1503]**
NWA 1460 is a shergottite from Morocco that almost certainly is paired with NWA 480 found one year earlier. NWA 1460 contains accessory baddeleyite which may be amenable to U-Pb dating.

Goodrich C. A. van Niekerk D. Morgan M. L.
Northwest Africa 1110: A New Olivine-Phyric Shergottite Possibly Paired with Northwest Africa 1068 **[#1266]**
NWA 1110 is a new olivine-phyric shergottite. Its modal mineralogy, texture, and mineral compositions are similar to those of NWA 1068. Estimates of oxygen fugacity from early chromite indicate that it crystallized under more oxidizing conditions than other olivine-phyric shergottites.

Borg L. E. Draper D. S.
A Petrological Model for the Origin of Martian Shergottite Magmas Based on Their Major Element, Trace Element, and Isotopic Compositions **[#1169]**
Combined modeling of major and trace element data of a martian magma ocean constrains the source regions of shergottite magmas.