

Thursday, March 18, 2004

ORGANICS AND ALTERATION IN CARBONACEOUS CHONDRITES: GOOP AND CRUD
8:30 a.m. Marina Plaza Ballroom**Chairs: A. J. Brearley**
S. J. Clemett

- 8:30 a.m. Johnson N. M. * Cody G. D. Nuth J. A. III
Organics on Fe-Silicate Grains: Potential Mimicry of Meteoritic Processes? [#1876]
We present pyrolysis GCMS analyses of organics deposited on amorphous Fe-silicate grains during FTT type reactions. These results are compared with organics found in Murchison.
- 8:45 a.m. Huang Y. * Wang Y. De'Rosa M. Fuller M. Pizzarello S.
Molecular and Compound-Specific Isotopic Study of Monocarboxylic Acids in Murchison and Antarctic Meteorites [#1888]
We studied molecular distributions and C and H isotopic ratios of individual monocarboxylic acids in Murchison and EET96029,20 using a new and improved sample introduction method (SPME), and reveal new monoacids and isotopic characteristics.
- 9:00 a.m. Garvie L. A. J. * Buseck P. R.
Nanoglobules, Macromolecular Materials, and Carbon Sulfides in Carbonaceous Chondrites [#1789]
CI and CM chondrites contain a wealth of carbonaceous materials including nanoglobules, C-rich clays, and C-S flakes. The clay is the likely source of the macromolecular material.
- 9:15 a.m. Wirick S. * Flynn G. J. Keller L. P. Jacobsen C.
Evidence for Terrestrial Organic Contamination of the Tagish Lake Meteorite [#1532]
We performed carbon X-ray absorption near-edge structure spectroscopy on samples of the Tagish Lake meteorite collected in April and May 2000, and find spectra consistent with terrestrial bacteria, suggesting contamination on a time scale of months.
- 9:30 a.m. Messenger S. * Nakamura K. Nittler L. R. Young A.
Nitrogen Isotopic Imaging of Tagish Lake Carbon Globules [#1347]
We measured N isotopic compositions of individual submicrometer organic globules in Tagish Lake. Most globules are ¹⁵N-rich relative to terrestrial and the bulk matrix, reaching +670%.
- 9:45 a.m. Young A. F. * Nittler L. R. Alexander C. M. O'D.
Microscale Distribution of Hydrogen Isotopes in Two Carbonaceous Chondrites [#2097]
Ion imaging of the Tagish Lake (TL) and Al Rais (AR) meteorites reveals a large range of D/H and C/H ratios on a micron scale. Although TL has lower bulk D/H than CR2 AR, indicating extensive processing, some very D-rich material survives.
- 10:00 a.m. Clemett S. J. * Keller L. P. Nakamura K. McKay D. S.
The Nature and Origin of Aromatic Organic Matter in the Tagish Lake Meteorite [#2026]
Specific molecular analysis of organic matter in the Tagish Lake meteorite was performed using the recently constructed two step laser desorption mass spectrometer at Johnson Space Center. The non-macromolecular aromatic material is dominated by alkylated PAHs.
- 10:15 a.m. BREAK

- 10:30 a.m. Tyra M. A. * Farquhar J. Wing B. A. Benedix G. K. Jull A. J. T.
Jackson T. Thiemens M. H.
Terrestrial Alteration of CM Chondritic Carbonate [#1988]
In this study, carbonate was extracted from a set of paired Antarctic CM chondrites and ^{18}O , ^{17}O , ^{13}C , ^{14}C ratios measured. Oxygen isotopes were compared to data collected for CM chondrite falls to study the effects of terrestrial oxygen exchange.
- 10:45 a.m. Zega T. J. Garvie L. A. J. Dódony I. Buseck P. R. *
Serpentine Nanotubes in CM Chondrites [#1805]
Nanosized S-rich, mixed-valent serpentine nanotubes occur in the Mighei and Murchison CM chondrites. Their composition is intermediate between endmember cronstedtite and chrysotile.
- 11:00 a.m. Cohen B. A. * Brearley A. J. Ganguly J. Liermann H. P. Keil K.
Experimental Study of Serpentinization Reactions [#1423]
Experimental studies of the serpentinization of mixtures of olivine and enstatite show that at relatively elevated temperatures the reaction is controlled by the sluggish breakdown of forsterite, with talc as an intermediate phase in the reaction.
- 11:15 a.m. Burger P. V. * Brearley A. J.
Chondrule Glass Alteration in Type IIA Chondrules in the CR2 Chondrites EET 87770 and EET 92105: Insights into Elemental Exchange Between Chondrules and Matrices [#1966]
Elemental exchange of Ca, Na, K, Si, Fe and Mg has been documented between chondrule glass, alteration zones, and fine-grained matrices in CR2 chondrites EET 87770 and EET 92105. These data are used to constrain settings for aqueous alteration.
- 11:30 a.m. Chizmadia L. J. * Brearley A. J.
Aqueous Alteration of Carbonaceous Chondrites: New Insights from Comparative Studies of Two Unbrecciated CM2 Chondrites, Y 791198 and ALH 81002 [#1753]
A detailed comparison of Y-791198 and ALH81002 in terms of texture, composition and TEM observations reveals systematic exchange between chondrule mesostases and fine-grained rims. This is most consistent with the parent-body alteration model.
- 11:45 a.m. Brearley A. J. *
A Unique Style of Alteration of Iron-Nickel Metal in WIS91600, an Unusual C2 Carbonaceous Chondrite [#1358]
Metal nodules in Type I chondrules in WIS91600 (C2) have been pseudomorphed by Fe-rich serpentine, rather than tochilinite, implying notably different alteration conditions from typical CM2 chondrites.