Tuesday, March 24, 2009
POSTER SESSION I: ASTROBIOLOGY
6:30 p.m. Town Center Exhibit Area

Kurosawa K. Sekine Y. Sugita S. Ohkouchi N. Ogawa N. O. Ishibashi K. Kadono T. Ohno S. Matsui T.
Cyanide Production by Chemical Reactions Between Impactor Material and an Ambient Atmosphere After Oblique Impacts **[#1636]**
We conducted laser ablation experiments in redox-neutral gas mixtures using graphite and Murchison meteorite. The results suggest that CN radicals generated by interactions between impactor material and an atmospheric N_2 are fixed into the condensates efficiently.

Hasenkopf C. A. Beaver M. R. Freedman M. A. Tolbert M. A. Toon O. B.
Optical Growth Measurements of Titan and Early Earth Organic Aerosol Analogs **[#1417]**
We report optical growth factors measured for Titan and early Earth aerosol analogs. Water uptake is observed for both analogs. This has important implications for the direct and indirect effects of aerosol that may have existed on Archean Earth.

Cooper G. Sant M. Asiyo C.
Anomalous Enantiomer Ratios in Meteoritic Sugar Derivatives **[#2537]**
The enantiomer (mirror-image) ratios of sugar acids in carbonaceous meteorites have been measured. D-enantiomer excesses are found in all acids measured thus far. This includes rare as well as common compounds.

Foucher F. Westall F. Bény J.-M. Brandstätter F. Demets R.
STONE-6 Experiment: Testing the Survival of Microfossils in Martian Analogues Rocks During Entry into the Earth's Atmosphere **[#1583]**
The aim of the STONE-6 experiment was to determine if martian sedimentary rocks, and the hypothetical microfossils they could contain, can survive the Earth's atmospheric entry.

LeVoci G. Burchell M. J. Tepfer D.
Survival of Seeds in Impacts at 1 km s^{-1} and Above **[#1239]**
Survival of viable seeds in impacts at 1 km/s is demonstrated in laboratory experiments using a light gas gun. Work is continuing to determine the upper limit on impact speeds for seed survival. The implications for Panspermia are discussed.

Edwards L. Huang Y. Schultz P. H.
Preservation of Organic Materials During Hypervelocity Impact Experiments **[#2524]**
Experiments at the AVGR explore the survivability of organic materials trapped within glasses produced by oblique and vertical hypervelocity impacts.

Howe K. L. Gavin P. Goodhart T. Kral T. A.
Methane Production by Methanogens in Perchlorate-supplemented Media **[#1287]**
Perchlorates, found on the martian surface, create a harsh environment. Methanogens are familiar with harsh environments and their growth was tested in perchlorate salt media. All four species of methanogens produced methane at all concentrations of each salt tested.

Conrad P. G. Fogel M. L. Glamoclija M. Kerr L. Mogensen C. Eigenbrode J. Mahaffy P. R. Steele A.
Metrics for Habitability Assessment **[#1384]**
We report an approach to evaluation of habitability potential on another planet, with special relevance to Mars Science Laboratory. We are developing a tool for optimizing the most critical measurements for extraterrestrial environmental assessment.

Vítek P. Jehlička J. Bezdek J. Francu E.
Degradation of β-Carotene Under UV-rich Irradiation Conditions: Implications for Martian Environment **[#1970]**
In this work, degradation of beta-carotene was studied, depending on exposure to the light obtained by metal halide lamp in order to simulate Mars irradiation mainly in the UV region. The protective role of the mineral matrix was also studied and is further discussed.

Allen C. C. Oehler D. Z. Baker D. M.
Mud Volcanoes — A New Class of Sites for Geological and Astrobiological Exploration of Mars **[#1749]**
Mud volcanoes are a unique low-T window into the Earth's subsurface and may prove to be significant sources of atmospheric methane. We report new work suggesting that features in Acidalia Planitia are most consistent with their being mud volcanoes.

Westall F. Foucher F. Cavalazzi B.
No Stromatolites on Mars? **[#1759]**
Easily identifiable microbial traces such as stromatolites are not to be expected on Mars because they could not have evolved before climate change. Martian life will be subtle and difficult to detect *in situ*.

Androes D. L. Dixon J. C. Zachry D. L.
The Evolution of Astronomically-forced Siliclastic Rhythmites of the Ancient Earth and their Correlation to Banded-Iron Formations **[#2323]**
Although the bulk of past research presumes that metamorphism, Milankovitch or climatic events have annihilated or overprinted any small-scale, orbitally-influenced, ubiquitous BIF laminations, recent research suggests preservation of small scale patterns is possible.

Socki R. A. Niles P. B. Blake W. Jr. Leveille R.
Covariant C and O Isotope Trends in Arctic Carbonate Crusts and ALH 84001: Potential Biomarker or Indicator of Cryogenic Formation Environment? **[#2218]**
Covariant C and O micro-scale isotope trends in arctic carbonate crusts mimic, to a lesser extent, those in ALH 84001 and are ideal terrestrial analogs for the isotopic composition of the ALH 84001 carbonates, implying a similar formation environment.

Lemelle L. Salome M. Westall F. Susini J. Simionovici S.
In Situ Search for Traces of Life in Extraterrestrial Samples Using X-Ray Spectromicroscopy at the Sulfur K-Edge **[#1842]**
Two selected case studies (Stardust keystones and Draken's Neoproterozoic cells) exemplify the relevance of micro-X-ray fluorescence at the S K-edge performed at the ID21 beamline of the ESRF to search for traces of life in extraterrestrial samples.

Jimenez-Lopez C. Romanek C. Rodriguez-Navarro A. Perez-Gonzalez T. Rodriguez-Navarro C.
Magnetites Formed from Thermal Decomposition of (Ca,Mg,Fe)CO_3: "Foreign" Cation Incorporation into the Estructure of Magnetite **[#1255]**
Pure magnetites are obtained from ankerite thermal decomposition. Chemical purity is typical of bacterial origin magnetites. Chemical purity of magnetites produced by thermal decomposition of ankerites containing different cations was analyzed.

Gánti T. Pócs T. Bérczi Sz. Horváth A. Kereszturi A. Sik A. Szathmáry E.
Ideal Microhabitats on Mars: The Astrobiological Potential of Polar Dunes **[#1618]**
Astrobiological potential of polar Dark Dunes: they may hold less oxidants, trap water-ice, mm layer of them shields UV radiation, allows light income for photosynthesis. Water uptake in nighttime, temperature in daytime is favorable for metabolism.

Banerjee N. R. Bridge N. J. Izawa M. R. M. Anderson L. D. Bebout G. E. Flemming R. L.
Glassy Subaqueous Lavas as a Habitat for Life on Earth, Mars, and Elsewhere? **[#1331]**
Biogeochemical and mineralogical traces of life preserved in modern and ancient terrestrial subaqueous lavas suggest basaltic rocks on Mars and other rocky bodies may represent an underappreciated habitat for life in the solar system.

Kong F. J. Zheng M. P. Wang A. L. Ma N. N.
Endolithic Halophiles Found in Evaporite Salts on Tibet Plateau as a Potential Analog for Martian Life in Saline Environment **[#1216]**
Mg-sulfates was found within salt deposits of the Da Langtan playa on Tibet plateau, similar as those found on Mars. Halophiles were isolated from the evaporative salts in the environment for analogs of the search for martian life in subsurface.

Cabrol N. A. Grin E. A. Wynne J. J.
Detection of Caves and Cave-bearing Geology on Mars **[#1040]**
Regions on Mars likely to contain caves and/or cave-bearing geology are identified using multispectral imagery from orbital missions and the exploration of terrestrial analogs for the characterization of associated thermal, and geo-signatures.