

Thursday, March 21, 2013
POSTER SESSION: EXOBIOLOGY
6:00 p.m. Town Center Exhibit Area

[R734]

- Westall F. *POSTER LOCATION #654*
[Nature and Analysis of Kerogen Associated with Early Archaean Biosignatures: Lessons for Mars](#) [#1346]
 The structural, compositional and distributional characteristics of Early Archaean kerogen can help in situ biosignature recognition on Mars.
- Gross C. Airo A. Al-Samir M. Sowe M. Nabhan S. et al. *POSTER LOCATION #655*
[Martian Crater-Lake Environments and Their Potential Range of Biological Deposits](#) [#2452]
 We present a range of potential crater-lake deposits that could form under abiotic and biotic settings.
- McMahon S. Parnell J. *POSTER LOCATION #656*
[Potential for Deep Hydrogenotrophic Life on Mars](#) [#2870]
 We discuss three possible sources of hydrogen for life in the martian subsurface: serpentinization, radiolysis, and seismic mechanoradical chemistry.
- Castleberry P. Harvey R. P. *POSTER LOCATION #657*
[Characterizing Rock-Water Interactions in a Simulated Martian Aquifer](#) [#2329]
 To look for markers / We cook a deep martian brine / Life's needed or not?
- Steiner M. H. Hausrath E. H. Sun H. J. *POSTER LOCATION #658*
[Synthesis of Potential Phosphate Mineral Biosignatures Under Mars Relevant Conditions](#) [#2761]
 Potential phosphate mineral biosignatures were formed in Mars-relevant solutions in the presence of microorganisms and extracellular polysaccharides.
- Basilevsky A. T. *POSTER LOCATION #659*
[Mars Science Laboratory Search for Organics: Potential Contribution from Infall of Meteorites](#) [#1131]
 We suggest the technique through using the contents of Corg and Ni to distinguish in MSL studies indigenous martian organics from those brought by meteorites.
- Popa R. Fisk M.-R. Meslin P.-Y. Lasue J. Léveillé R. et al. *POSTER LOCATION #660*
[Abiotically Formed Redox Interfaces in Basalt Sand — A Mars Habitat of Interest](#) [#1442]
 We compare sources of bioavailable energy in MSL reachable habitats. A source of energy in Mars basalt sands can be redox interfaces produced by solar irradiation.
- Fisk M. Popa R. Bridges N. T. Rennó N. Mischna M. et al. *POSTER LOCATION #661*
[Habitability of Transgressing Mars Dunes](#) [#1434]
 Moving dunes may create environments in which the energy and material needed to support life are continually replenished.
- Perl S. M. McLennan S. M. Herkenhoff K. E. *POSTER LOCATION #662*
 Berelson W. M. Corsetti F. A. et al.
[Preservation Potential of Organic Matter in Secondary Porosity of the Burns Formation, Meridiani Planum, Mars](#) [#2370]
 The purpose of this paper is to show how pore networks observed in the Burns Formation could retain organic matter, if present, in the martian subsurface.
- Blanco A. Ángeles-Trigueros S. A. *POSTER LOCATION #663*
 Castañeda-Posadas C. Ambrocio-Cruz S. P.
[Fossilized Pollen Grains in Sedimentary Pyrite and its Significance for Life Prospection in Mars](#) [#3060]
 The objective of this work is to provide a general description of pyritized pollen grains from Upper Cretaceous rocks from Mexico.

Blanco A. Bolaños-Sánchez U. Lizárraga-Mendiola L.
Hernández-Ávila J. Ángeles-Trigueros S. A. et al. **POSTER LOCATION #664**
[Microscopic Evidences of Replacement of Iron Sulfide by Iron Oxide in Macro Fossils: A Useful Tool for the Search of Life in Mars?](#) [#2956]

This paper reports crystals, framboids, and teeth and sockets in iron oxides in macrofossils from the Eagle Ford Fm (Cretaceous), at Coahuila state, Mexico.

Bost N. Loisel L. Foucher F. Ramboz C. Westall F. **POSTER LOCATION #665**
[Synthesis of Basalts as an Analog to Gusev Crater Basalts, Mars: Interest for Astrobiology](#) [#1457]

Here we present the results of the synthesis of three samples of artificial basalts, similar to basalts observed in the crater Gusev on Mars.

Wright S. P. Newsom H. E. **POSTER LOCATION #666**
[Potential for Field and Sample Data of Lonar Crater, India as Astrobiological Analogs](#) [#2962]

Shocked altered basalt and shocked soil from Lonar Crater can be used as analogs for similar materials found by rovers or in martian meteorite melt veins.

Marnocha C. L. Dixon J. C. **POSTER LOCATION #667**
[Pyrosequencing Analysis of Bacterial Communities in Rock Coatings from Swedish Lapland](#) [#1566]

Pyrosequencing was used to investigate bacterial communities in Fe/Mn films, sulfate crusts, and aluminum glazes from Kärkevagge, Swedish Lapland.

Mickol R. L. Marnocha C. L. **POSTER LOCATION #668**
[Anaerobic Culturing Experiments of Sulfate Crusts, Fe/Mn Skins, and Aluminum Glazes from Kärkevagge, Swedish Lapland](#) [#1785]

Rock coatings from Kärkevagge, Swedish Lapland are host to anaerobic organisms, furthering the potential for rock coatings to serve as biosignatures on Mars.

Jänchen J. Meessen J. Ott S. Sánchez F. J. de la Torre R. **POSTER LOCATION #669**
[Low Temperature Interaction of Humidity with the Lichens Buellia Frigida and Circinaria Gyrosa](#) [#1504]

A quantitative study is presented of the water vapor interaction with extremophiles under close to martian surface conditions using adsorption methods.

Dulai S. deVera J.-P. Kereszturi Á. Koncz L. Lorek A. et al. **POSTER LOCATION #670**
[Surveying the Survival of Cyanobacteria in Cryptobiotic Crust Under Martian Conditions](#) [#1971]

We report survival tests of cyanobacteria in cryptobiotic crust under simulated martian conditions, where best survival was observed at salt tolerant organisms.

Mickol R. L. González-Medina J. M. Kral T. A. **POSTER LOCATION #671**
[Variation in Evaporation Rates of Liquid Media at Low Pressure](#) [#1782]

One obstacle hindering the growth of microorganisms under simulated martian conditions is the low surface pressure of the planet.

González-Medina J. M. Mickol R. L. Kral T. A. **POSTER LOCATION #672**
[Testing Methanogen Growth at Low Pressure](#) [#1353]

Methane on Mars was found at 10 ± 3 ppb. The source of methane is unknown. Is there a possible biological source? Methanogens microorganisms could be an option.

White L. M. Russell M. J. Mielke R. E. Shibuya T. Christensen L. et al. **POSTER LOCATION #673**
[Alkaline Hydrothermal Vents: Assembling the Redox Protein Construction Kit on Icy Worlds](#) [#2341]

Experiments simulating early Earth alkaline hydrothermal vents reveal iron sulfides capable of catalyzing the possible emergence of life on an icy world.

Kirby J. P. Cable M. L. Jones S. M. Davies A. G. Willis P. A. *POSTER LOCATION #674*
[Concept For Remote Chemical Analysis of Enceladus Amino Acid Chirality](#) [#1829]
Presented is an instrument concept to measure the chirality of amino acids via remote chemical analysis of ice dust particles emanating from Enceladus.

Barge L. M. Russell M. J. Kanik I. *POSTER LOCATION #675*
[Fuel Cell Simulations of Hydrothermal Vents on Europa](#) [#2200]
We simulated a hydrothermal system on an icy world in a membrane fuel cell experiment, to test whether ambient pH/Eh gradients can drive prebiotic chemistry.

Cable M. L. Stockton A. M. Mora M. F. Willis P. A. *POSTER LOCATION #676*
[A Novel Protocol to Analyze Short- and Long-Chain Fatty Acids using Nonaqueous Microchip Capillary Electrophoresis](#) [#2921]
We propose a new protocol for short- and long-chain saturated fatty acids using a microfluidic technique in ethanol with laser-induced fluorescence detection.

Quinn R. Elsaesser A. Ehrenfreund P. Ricco A. Breitenbach A. et al. *POSTER LOCATION #677*
[OREOcube: ORganics Exposure in Orbit](#) [#2498]
The OREOcube experiment will use in situ spectroscopy to study minerals and organic compounds exposed to LEO radiation conditions on an ISS external platform.