

Wednesday, March 22, 2017

[W451]

EXO BIOLOGY: SEARCHING FOR (SIGNS OF) LIFE HIGH AND LOW, NEAR AND FAR**1:30 p.m. Waterway Ballroom 1**

Chairs: Nina Lanza
Steven Ruff

- 1:30 p.m. Ohno S. * Ishibashi K. Miyake N. Kawaguchi Y. Kakehashi Y. et al.
[*The Biopause Project: Balloon Experiments for Sampling Stratospheric Bioaerosol*](#) [#1890]
We show the first results of the Biopause project, balloon experiments for the sampling of stratospheric bioaerosol including unculturable ones.
- 1:45 p.m. Grimm R. E. * Marchi S.
[*Hadean Bombardment Did Not Limit Early Subsurface Habitability*](#) [#1268]
Impact heat is dissipated rapidly and melt-sheet cooling times are fast compared to the waning bombardment. Most days in the Hadean, it's good to be alive.
- 2:00 p.m. Phillips-Lander C. M. * Miller K. M. Hausrath E. M. Stockton A. M. McCollum N. et al.
[*Light, Temperature, and Nutrient Availability Influence Microbial Colonization of Lava Caves*](#) [#1667]
Microbial colonization in spatially co-located lava caves at Craters of the Moon National Monument is influenced by light, temperature, and phosphate limitation.
- 2:15 p.m. Bleacher J. E. * Shiro B. R. McAdam A. C. Young K. E. Johnson S. S. et al.
[*Studies of Young Hawaiian Lava Tubes: Linking Geophysics, Geochemistry, Mineralogy, and Habitability in Basalt Subsurface Environments on Mars*](#) [#2634]
We report on a study to link geophysics measurements from the surface with measurements of a lava tube's geochemistry, mineralogy, and environmental habitability.
- 2:30 p.m. Morisson M. * Buch A. Szopa C. Raulin F. Stambouli M.
[*TMAH Thermochemolysis of a Martian Regolith Simulant: Optimization of an Analytical Method for the Detection of Trace Organic Matter by the MOMA-Pyr-GC-MS Experiment Onboard the ExoMars-2020 Rover*](#) [#1079]
We optimized an analytical method for the detection of trace organic matter by the MOMA-Pyr-GC-MS experiment onboard the ExoMars-2020 rover.
- 2:45 p.m. Lanza N. L. * Clegg S. M. Cousin A. Forni O. Kirk M. F. et al.
[*Identifying Potential Chemical Biosignatures in Manganese Minerals with Laser-Induced Breakdown Spectroscopy*](#) [#2913]
Maybe LIBS can say / If manganese chemistry / Shows sneaky microbes.
- 3:00 p.m. Pontefract A. * Hachey J. Mojarro A. Walker V. K. Rowedder H. et al.
[*Understanding Habitability and Biosignature Preservation in a Hypersaline Mars Analog Environment: Lessons from Spotted Lake*](#) [#1124]
A study of the microbial community of Spotted Lake, revealing the organisms and metabolic processes that could leave behind a robust biosignature.
- 3:15 p.m. Craig P. I. * Mickol R. L. Archer P. D. Kral T. A.
[*Nontronite and Montmorillonite as Nutrient Sources for Life on Mars*](#) [#1997]
Methanogens can grow on Mars-relevant clay minerals without supplemental media, suggesting Noachian Mars could potentially have supported microbial life.

- 3:30 p.m. Silver M. * Mora S. Ivey M. Chevrier V.
[*An Experimental Assessment on the Effects of Variations in Sulfate Concentrations on Sulfate Reducing Bacteria in Simulated Martian Conditions*](#) [#1047]
An experimental assessment of the survival capabilities of sulfate reducing bacteria in simulated martian conditions.
- 3:45 p.m. Tarnas J. D. * Mustard J. F. Sherwood Lollar B. Bramble M. S.
[*Radiolytic Hydrogen Production on Noachian Mars*](#) [#2030]
Radiolysis of pore water generated biologically significant quantities of hydrogen in the martian subsurface during the Noachian.
- 4:00 p.m. Bouquet A. * Glein C. Wyrick D. Waite J. H.
[*Production of H₂ by Radiolysis of Water in the Cores of Icy Bodies Increases the Habitability of the Outer Solar System*](#) [#1429]
We quantify how radionuclides in icy bodies' cores can produce molecular hydrogen by radiolysis of liquid water, increasing habitability of the body.
- 4:15 p.m. Johnson S. S. * Ellington A. D. Anslyn E. V. Graham H. V. Mahaffy P. R.
[*Fingerprinting Non-Terran Life*](#) [#2164]
Without presupposing any particular molecular framework, this new approach could be used to search for agnostic biosignatures, particularly on Ocean Worlds.
- 4:30 p.m. Neish C. D. * Lorenz R. D. Turtle E. P. Barnes J. W. Trainer M. G. et al.
[*Strategies for Detecting the Products of Aqueous Chemistry on Titan*](#) [#1457]
Amino acids / Hiding in Titan's craters / Let's go collect them!
- 4:45 p.m. Teodoro L. F. * Davila A. F. McKay C. P. Dartnel L. R. Elphic R. C.
[*Ionizing Radiation in the Subsurfaces of Enceladus and Europa: Implications for the Search for Evidence of Life*](#) [#2863]
We model the radiation environment originated by GCR on the shallow surfaces of icy moons. We will present the dosage accumulated for a series of biomarkers.