

Monday, March 19, 2018

[M104]

**ASTROBIOLOGY I: LOOKING FOR LIFE ON MARS, MICROBIAL IMPACT OF
HUMAN EXPLORATION, CURATION CONTAMINATION MEASUREMENTS
8:30 a.m. Waterway Ballroom 6**

**Chairs: Amy Williams
Jesse Tarnas**

- 8:30 a.m. Michalski J. R. * Onstott T. C. Mojzsis S. J. Mustard J. Chan Q. H. S. et al.
[A Mars Exploration Strategy Focused on the Origin of Life](#) [#1774]
We argue that a Mars exploration strategy should target hydrothermal and subsurface environments, rather than surface sedimentary environments.
- 8:45 a.m. Tarnas J. D. * Mustard J. F. Sherwood Lollar B. Bramble M. S. Cannon K. M. et al.
[Radiolytic H₂ Production, Transport, and Dissolution on Noachian Mars](#) [#2073]
Model of radiolytic H₂ production, diffusion, and dissolution shows that dissolved H₂ concentrations in Noachian groundwaters likely could have supported life.
- 9:00 a.m. Van Kranendonk M. V. Damer B. F. * Boyd E. Cady S. Campbell K. et al.
[Terrestrial Hot Springs and the Origin of Life: Implications for the Search for Life Beyond Earth](#) [#2535]
We provide a broad framework of observations, a conceptual model, and implications for an origin of life among hot springs on land.
- 9:15 a.m. Ruff S. W. * Farmer J. D. Juarez Rivera M.
[Testing Alternative Hypotheses for the Origin of Hydrothermal Silica at Home Plate, Mars with Implications for Astrobiology](#) [#2367]
New fieldwork at hydrothermal sites, along with lab studies, support a hot spring origin and potential role of microbes in the formation of Home Plate silica.
- 9:30 a.m. Trzcinski B. H. * Humayun M. Gibbons J. A. Zanda B. Colas F. et al.
[The Sources of Titanium in Siliceous Sinters from Chilean Hot Springs: Implications for Martian Silica](#) [#1271]
We report abundances for fluid immobile elements in silica sinters that are potential terrestrial analogs for martian silica with application to Mars.
- 9:45 a.m. Fox-Powell M. G. * Channing A. Applin D. Mann P. Cloutis E. et al.
[Cryogenic Silicification of Microorganisms in Hydrothermal Fluids](#) [#2546]
We describe how microorganisms become incorporated into opal-A silica during the rapid freezing of silica-rich fluids, with relevance to Mars and icy moons.
- 10:00 a.m. Hynke B. M. * Rogers K. L. Antunovich M. Avard G. Alvarado G. E.
[Lack of Microbial Diversity in an Extreme Mars Analog Setting: Poás Volcano, Costa Rica](#) [#1608]
Poás volcano, Costa Rica, was investigated as an analog to Mars' hydrothermal systems. Astoundingly, a monoculture containing a single species was recovered.
- 10:15 a.m. Millan M. * Williams A. J. Buch A. Bai A. Freissinet C. et al.
[Preservation of Organic Molecules in Mars-Analog Samples Using Pyrolysis and Derivatization GCMS Experiments from the SAM Instrument](#) [#1558]
Nature/amount of organics present in analog samples representative of various martian mineralogies: SAM-like pyrolysis and MTBSTFA derivatization GCMS experiments.

- 10:30 a.m. Williams A. J. * Eigenbrode J. L. Johnson S. S. Craft K. L. Wilhelm M. B. et al.
[*Fatty Acid Preservation in Mars-Analogous Rock Samples and Detection with the TMAH Wet Chemistry Experiment on the Sample Analysis at Mars \(SAM\) Instrument*](#) [#1112]
Molecular biosignature preservation in Mars-analog environments and their potential for detection by the SAM TMAH experiment onboard the Curiosity rover.
- 10:45 a.m. Tan J. S. W. * Lewis J. M. T. Sephton M. A.
[*The Fate of Lipid Biosignatures in a Mars-Analogue Sulfur Stream*](#) [#1420]
A study on the early stage preservation of lipids in an acidic, sulfur stream that serves as a geochemical analogue of Hesperian Mars.
- 11:00 a.m. Ertem G. * McKay C. P.
[*Protection of Biomolecules by Martian Analogue Minerals Against the Effects of Gamma Radiation*](#) [#1503]
Protective role of martian analog minerals for biomolecules against gamma radiation, and to compare their decomposition rates on surface and 5 cm below surface.
- 11:15 a.m. Schuerger A. C. * Lee P. Richards J. T. Cortes-Ramos C. T. Lorber K. et al.
[*Dispersal of Human-Commensals at the Haughton Mars Project \(HMP\) Arctic Field-Site: Implications for the Forward Contamination Around Human Habitats on Mars*](#) [#2582]
Low microbial dispersal rates for human commensals surrounding the Haughton Mars Project basecamp suggest low contamination rates for human habitats on Mars.
- 11:30 a.m. Regberg A. B. * Burton A. S. Castro C. L. Stahl S. E. Wallace S. L. et al.
[*Microbial Ecology of the Johnson Space Center Meteorite Curation Lab and Associated Infrastructure*](#) [#2056]
Clean is not sterile / Fungi are overlooked / Life uh finds a way.