This session investigates the interaction of microbial communities in evaporative and desert systems using field techniques, genomics, and biogeochemistry and the possible role these types of communities might have in extraterrestrial environments.

Chairs: Valeria Souza
       Janet Siefert

8:00 a.m. Souza V. * Eguiarte L. E. Garcia-Oliva F. Olmedo G. Travissano M. Elser J. Siefert J. 
Cuatro Ciénegas: A Living Ancient World Dominated by Microbialites [#5148] 
Cuatro Ciénegas oasis has Permian marine microbial communities that persisted and evolved forming actual microbial mats and stromatolites that sustain the rich diversity and endemicity in this oligotrophic valley.

8:15 a.m. Glamoclija M. * Fogel M. L. Kish A. Steele A. 
Microbial Signatures from the Arid Environments of White Sands National Monument, New Mexico [#5460] 
Since the White Sands National Monument has been proposed as a terrestrial analog to sulfates on Mars, we investigated the arid evaporite systems in the WSNM in order to find different microbial habitats and assess their ecological characteristics.

8:30 a.m. Corman J. R. * Souza V. Elser J. J. 
Interactions of Biogeochemical Cycles in Oncoid Microbialites from Cuatro Ciénegas, Mexico [#5508] 
Modern microbialite systems may provide unique opportunities to study the feedbacks that couple or uncouple multiple biogeochemical cycles. Here we present results from a two-week manipulative ecosystem experiment using oncoid microbialites from Cuatro Ciénegas, Mexico.

8:45 a.m. Routt V. Farmer J. * 
Microbial Biosignature Capture and Preservation in Oncoid Microbialites of the Rio Mezquites, Cuatro Ciénegas Basin, Mexico. [#5509] 
In this study, we evaluate the impact of early taphonomic and diagenetic processes on microbial biosignature capture and preservation in oncoid microbialites of a bicarbonate-rich, desert spring in north central Mexico.

9:00 a.m. Bonilla-rosso G. * Peimbert M. Olmedo G. Alcaraz L. D. Eguiarte L. E. Souza V. 
Life in Oligotropic Desert Environments: Contrasting Taxonomic and Functional Diversity of Two Microbial Mats with Metagenomics [#5670] 
The metagenomic analysis of two microbial mats from the oligotrophic waters in the Cuatrocíéngas basin reveals large differences both at taxonomic and functional level. These are explained in terms of environmental stability and nutrient availability.

9:15 a.m. Calvin W. M. * LaCroix L. M. Sun H. 
Spectral Characterization of Endolithic Communities with Reflectance and Raman Techniques [#5308] 
We describe spectral measurements of microbial communities that grow on or in host rocks in an effort to separate biological and mineralogical signatures.

9:30 a.m. Brigmon R. L. * Yeager C. Morris P. A. 
Interactions of Minerals and Microbes in Evaporite Environments: Can We Use this Information to Identify Potential Extraterrestrial Life? [#5639] 
Analysis revealed unique biofilms in both the Israeli and Jordanian sides of the Dead Sea as well a hypersaline pond in San Salvador, Bahamas. Both sites have active microorganisms embedded in mineral deposits that may be found in extraterrestrial settings.
9:45 a.m. Rennó N. O. * Stan-Lotter H. Szathmáry E. Möhlmann D. T. F.  
*To Search for Life on Mars: Follow the Brines [#5182]*  
Brines were recently discovered on Mars. In order to search for life, we should follow them because many terrestrial microorganisms thrive on brines.

10:00 a.m. Coe L. K. * Sun H. mckay C. P.  
*Spaceward Bound: Field Training for the Next Generation of Space Explorers [#5665]*  
Spaceward Bound is an educational program developed at NASA Ames to train the next generation of space explorers where students and teachers participate in the exploration of interesting, remote and extreme environments — analogs for human exploration of the Moon and Mars.

10:15 a.m. BREAK