Monday, May 21, 2018
POSTER SESSION
5:30 p.m. Great Room

Posters will be on Display for the Entire Meeting.

German C. R.
Seafloor Fluid Flow and the Search for Extant Life: Escaping Earthly Prejudices **[#6012]**
Despite decades of experience, ocean scientists on Earth continue to discover novel forms of seafloor fluid flow with the potential to host novel forms of life. Ocean Science can inform the search for life beyond Earth but should not dictate it.

Motamedi S. Pendelton H. L. Twing K. I. Brazelton W. J.
Exploration of Subsurface Microbial Communities Within Seafloor Mantle Rocks **[#6018]**
During the IODP Expedition 357 serpentine rocks from a subseafloor site were collected to characterize the microbial communities that inhabit the serpentine rocks and to distinguish endemic communities from potential sources of contamination.

Leong J. M. Howells A. H. Robinson K. J. Shock E. L.
Thermodynamic Predictions vs. Measured Fluid Chemistry: Lessons from Low-Temperature, Serpentinizing Fluids **[#6025]**
A combination of reaction-path, mixing, and sensitivity calculations was used to reconcile deviations between thermodynamic predictions and actual measurements of low-temperature serpentinizing fluid chemistry.

Milesi V. Shock E.
Seamount Hydrothermal Systems as Analogies for Ocean Worlds: Reaction Paths Throughout the Lo'ihi Seamount (Hawaii Archipelago) **[#6045]**
Thermodynamic modeling is performed to investigate the possible reaction paths of sea water throughout the Lo'ihi seamount and the associated geochemical supplies of energy that can support autotrophic microbial communities.

Nunn C. K. Kral T. A.
Modeling Possible Ocean Composition for Enceladus **[#6013]**
Current geochemical modeling for Enceladus tends to focus on hydrogen formation and mineral composition. This work looks instead at possible dissolved species in the ocean in order to determine its astrobiological potential.

Semprich J. Treiman A. H. Schwenzer S. P.
Modeling Rock Alteration at the Water-Rock Interface of Icy Moons **[#6009]**
Alteration phases of a CM rock core are modeled with variations in fluid composition at the water-rock interface of icy moons. In the presence of H_2O, CO_2, CH_4, and H_2 serpentinization of the rock core is very likely at low pressures and 200–400°C.

Zandanel A. E. Truche L. Hellmann R. Tobie G. Marrocchi Y.
Dissolution Rates and Reaction Products of Olivine Interaction with Ammonia-Rich Fluid **[#6019]**
Olivine dissolution rates and reaction products in NH_3-rich fluids are determined from experiments simulating H_2O-rock interaction on Enceladus. Kinetic rates are calculated from flow through experiments and reaction products from static experiments.

Pester N. Conrad M. Stolper D. DePaolo D.
Kinetics of D/H Isotope Exchange Between H_2 and H_2O and Potential use of Isotope Geothermometry on Plume Data from Enceladus **[#6034]**
Using experimental data, we develop kinetic models that asses the potential to apply H_2-H_2O isotope geothermometry towards the plume chemistry of Enceladus, such that we might elucidate the T-structure in the liquid ocean beneath the icy shell.

Scheuermann P. P. Seyfried W. E. Jr
Subsurface Pressure-Temperature Conditions and H_2(aq) Generation at the Piccard Hydro-Thermal Field, Mid-Cayman Rise **[#6046]**
The subsurface pressure-temperature conditions at the Piccard hydrothermal field are constrained using the Si-Cl geothermobarometer. Ol-Mgt and Opx-Mgt are proposed as assemblages that buffer H_2(aq) at Piccard.

Pandey N. V.
Life: We Know the Ingredients but Not the Recipe **[#6004]**
We know the major ingredients of life but we certainly do not know its recipe and therefore not a single lab has been able to build a chemical system that resembles life so far. Let us understand life before we imagine an alternate one.

Schmidt B. E. Lawrence J. D. Meister M. R. Dichek D. J. G. Ramey C. D. Hurwitz B. C. Lutz J. J. Lawrence J. P. Spears A. Glass B. J. Stockton A. S. Bowman J. S. Speller N. Philleo M.
Under Ice Robotic Exploration of the McMurdo Sound and Ross Ice Shelf **[#6051]**
I will describe the results of our recent field work in the Antarctic using Icefin to characterize ice-ocean and ocean-seafloor interfaces.

Lee P. A. Dyar M. D. Sklute E. C. Taylor E. C. Mikucki J. A.
Ice-Covered Chemosynthetic Ecosystems: Mineral Availability and MicroBiological Accessibility (ICE-MAMBA) **[#6017]**
The ICE-MAMBA project is a collaborative effort consisting of three overlapping and integrated multidisciplinary studies to examine various molecular, mineralogical and metabolic biosignatures in cold, briny discharges from Blood Falls, Antarctica.

Saunders J. K. McIlvin M. M. Moran D. Held N. Futrelle J. Webb E. Santoro A. Dupont C. Saito M.
Proteomic Characterization of Central Pacific Oxygen Minimum Zone Microbial Communities **[#6020]**
Microbial proteomic profiles are excellent for surveying vast expanses of pelagic ecosystems for links between microbial communities and the biogeochemical cycles they mediate. Data from the ProteOMZ expedition supports the utility of this method.

Kiel Reese B. Sobol M. S. Hoshino T. Inagaki F. Eder E. Nicora C. D. Heyman H. M. Kyle J. E. Hoyt D. W. Tfaily M. M. Metz T. O.
Fungal Survival in a Chemosynthetic Ecosystem **[#6007]**
Fungi possess metabolic pathways capable of utilizing previously considered non-bioavailable energy reserves. Metabolically active fungi occupy a unique niche within the subsurface, providing an organic carbon source for heterotrophic prokaryotes.

Marlow J. Hatzenpichler R. Girguis P.
Linking Metabolic Activity, Microbial Identity, and Microscale Spatial Arrangements in Chemosynthetic Seafloor Habitats **[#6005]**
With an innovative combination of metabolic tracers, fluorescent probes, and microscopy, we present a novel way to pinpoint the geobiological drivers of metabolic activity at silicate and carbonate-based chemosynthetic seafloor habitats.

Van Den Berghe M. D. West A. J. Nealson K. H.
Effects of Bacterial Siderophore and Biofilm Synthesis on Silicate Mineral Dissolution Kinetics: Results from Experiments with Targeted Mutants **[#6003]**
This project aims to characterize and quantify the specific microbial mechanisms and metabolic pathways responsible for silicate mineral dissolution and micronutrient acquisition directly from mineral phases.

Spiers E. M. Schmidt B. E.
A Watched Ocean World Never Boils: Inspecting the Geochemical Impact on Ocean Worlds from Their Thermal Evolution **[#6049]**
I aim to acquire better understanding of coupled thermal evolution and geochemical fluxes of an ocean world through a box model. A box model divides the system into plainer elements with realistically-solvable, dynamic equations.

White S. M.
Hunting for Hydrothermal Vents at the Local-Scale Using AUV's and Machine-Learning Classification in the Earth's Oceans **[#6026]**
New AUV-based mapping technology coupled with machine-learning methods for detecting individual vents and vent fields at the local-scale raise the possibility of understanding the geologic controls on hydrothermal venting.

Nawotniak S. E. K. Lim D. S. S. German C. R. Shock E. L. Huber J. A. Breier J. A.
Project Introduction for SUBSEA: Systematic Underwater Biogeochemical Science and Exploration Analog **[#6014]**
NASA SUBSEA studies low T, low P seamounts via integrated volcanology, geochemistry, and microbiology as an analog for Enceladus. Research done in telerobotic space exploration simulation. First cruise is Loihi in August 2018.

de Morais A.
Geothermal Energy in Planetary Icy Large Objects via Cosmic Rays Muon–Catalyzed Fusion **[#6001]**
We propose the possibility that muon-catalyzed fusion, produced by cosmic rays, might add energy to the interior of planetary icy large objects of the solar system, and other solar systems, interesting for astrobiological considerations.

Rymer A. M. Persoon A. Morooka M. Coates A. J.
What can Plumes tell Us About Sub-Surface Oceans? **[#6038]**
What plume properties are evolved (not produced at the moon) versus what properties are preserved features that could be due to the presence of a sub-surface ocean.

Schindhelm E. R. Hendrix A. R. Fleming B. T.
An Ultraviolet Spectrograph Concept for Exploring Ocean Worlds **[#6002]**
UV spectroscopy can probe dust/ice composition of the surface or plumes via uniquely identifying features. We present a technology concept for a future planetary science UV multi-object imaging spectrograph.