Thursday, March 19, 2015  
POSTER SESSION II: MARS LABORATORY EXPERIMENTS AND COMPUTER MODELS  
6:00 p.m.  Town Center Exhibit Area

Bullock M. A.  Schwenzer S. P.  Bridges J. C.  Chavez C.  Filiberto J. et al.  POSTER LOCATION #487
*Noble Gas Fractionation During Low Temperature Alteration — An Experimental Approach* [#1235]
We will report on experiments under simulated Mars conditions to quantify the role that aqueous processes on Mars fractionate noble gases.

*Simulating a Martian Fumarole: Understanding the Effects of a Degassing Martian Magma on Surrounding Rock* [#2305]
Volcanic vents/Around the martian surface/Could they make the clay?

Elwood Madden M. E.  Elwood Madden A. S.  Miller J. M.  Phillips-Lander C. M.  Pritchett B. R.  POSTER LOCATION #489
*Fluid Alteration of Alunite Group Minerals: Comparing Dissolution Rates and Products* [#1513]
Alunite slower to dissolve than jarosite. Jarosite forms Fe oxide minerals, alunite forms amorphous Al phase. Alunite preserved in hydrothermal conditions.

Phillips-Lander C. M.  Legett C.  Elwood Madden A. S.  Elwood Madden M. E.  POSTER LOCATION #490
*Pyroxene Dissolution in Sulfate and Chloride Brines: Implications for Post-Noachian Aqueous Alteration on Mars* [#2427]
Augite dissolution in ultra pure water and NaCl brine is incongruent but similar at steady state. In contrast dissolution is impeded in Na2SO4 brines.

Phillips-Lander C. M.  Ueshima M.  Fowle D. A.  Roberts J. A.  POSTER LOCATION #491
*Anion Chemistry and Microorganism Play Important Roles in Authigenic Clay Formation: Implications for Interpreting Noachian Mars* [#2211]
Hydrothermal solutions display different mineralogy and geochemistry due to differences in complexation chemistry and microbial nucleation.

Marschall M.  Hilyakiné K. M.  Gyollai I.  Józsa S.  Kereszturi A.  POSTER LOCATION #492
*Basalt Weathering Experiment in Sulfuric Acid Brine to Better Understand Martian Mineral Alterations* [#1333]
Basalt weathering tests were realized in H2O and H2SO4 at +20° and –20°C. Mineral alterations are described by optical and infrared microscopy.

Farris H. N.  Chevrier V. F.  Kennington D.  Bryson K. L.  POSTER LOCATION #493
*Experimental Investigation of Adsorption Kinetics in Montmorillonite: Implications for Diurnal Variations of Martian Atmospheric Water* [#1545]
Simulation experiments yielded adsorption and desorption kinetic constants for montmorillonite under Mars conditions.

Wang Alian.  Wei J.  Lu Y. L.  Connor K.  POSTER LOCATION #494
*Formation of Chloride Hydrates via Vapor-Solid Reaction at Low-T — Implication for a H2O-Rich Cryosphere in Mars Subsurface and on Other Icy Planetary Bodies* [#2483]
We demonstrated the formations of chloride hydrates via a vapor-solid reaction at low-T, thus feasibility of recharging RSL source materials in local winter.

Schofield R. E.  Haustrath E. M.  Gainey S. R.  POSTER LOCATION #495
*Zeoilte Weathering in Laboratory and Natural Settings, and Implications for Mars* [#2160]
Zeolites dissolve more rapidly than the clay minerals with which they are found on Mars, and may therefore provide a sensitive indicator of aqueous conditions.
The Importance of Fe-Redox Processes in Groundwater Chemistry on Earth and Mars

Fe (and S) redox chemistry in terrestrial basaltic groundwaters highlight the importance of oxidant availability as the driver of fluid acidification on Mars.

Influence of Redox Conditions on the Secondary Mineralogy of Early Mars

Experimental results suggest that strong oxidants would have inhibited the formation of widespread Fe/Mg-smectites on early Mars.

Dissolution of Nontronite in Brines and Implications for Habitable Environments on Mars

Brine dissolution of nontronite can help provide an understanding of aqueous conditions on Mars and implications for habitability.

Phosphate Release: The Effect of Prebiotic Organic Compounds on Dissolution of Mars-Relevant Phosphate Minerals

Phosphate mineral interaction with prebiotic organic compounds may impact phosphate mobility in early, potentially habitable environments on Mars.

Geochemical Modeling of Aqueous Alteration Processes Within the Burns Formation, Meridiani Planum, Mars

A mass balance algorithm incorporating available uncertainties was used to better constrain potential phyllosilicate mineralogy in the Burns Formation, Mars.

Preliminary Numerical Modeling of Brine Formation on Mars During Impact-Driven Hydrothermal Circulation: The Chesapeake Bay Analog

Numerical modeling of martian hydrothermal system formed by impact crater to explain brine formation on the martian surface: The Chesapeake Bay Analog.

Fluids, Evaporation and Precipitates at Gale Crater, Mars

Diagenetic fluids at Gale Crater form clays at low temperature. These fluids, if evaporated, are capable of forming sulfates as found in light-toned veins.

Experimentally Shocked and Altered Basalt: SEM and XRD Analysis of Laboratory Analogs for Calibration of Mars Remote Sensing and In Situ Data

Comparison of SEM and XRD analysis results from experimentally shocked and unshocked Mars analog basalt altered under Mars-like conditions.

Comparison of VNIR Reflectance and MIR Emissivity Spectroscopic Changes for Impact-Altered Phyllosilicates

VNIR reflectance and MIR emissivity results for five clays exposed to experimental impacts are discussed to reveal trends in spectral change by clay and pressure.
Rivera-Valentin E. G. Craig P. I.  
*Impact-Induced Clay Mineral Formation and Distribution on Mars* [#2554]  
Impacts make much melt/Allowing Mars clays to form/But where are clays now?

Hibbert R. Price M. C. Kinnear T. M. Cole M. J. Burchell M. J.  
*The Effects of Shock Pressure on the Raman Spectrum of High Purity Quartz Crystals* [#1848]  
Quartz crystals were impacted at a range of velocities to generate varying degrees of shock before changes in their Raman spectra were observed and analyzed.