Thursday, March 23, 2017

POSTER SESSION II: EXPERIMENTAL STUDIES RELATED TO MARS GEOCHEMISTRY AND MINERALOGY
6:00 p.m. Town Center Exhibit Area

Chang R. Zhao Y. Y. S. POSTER LOCATION #557
Influences of Halogens on Jarosite Crystal Chemistry During Low Temperature Fe-Oxidation Processes on Mars [#3003]
Our experiments demonstrate that jarosite precipitates from halide-bearing brine could preferentially incorporate substantial amount of Br rather than Cl.

Miller K. M. Phillips-Lander C. M. Bishop J. L. POSTER LOCATION #558
Anhydrite Nucleation and Growth at Low Temperatures: Effects of Flow Rate, Activity of Water, and Mineral Substrates [#2133]
Our work seeks to link Ca-sulfate phase nucleation to specific hydrodynamic conditions via XRD, Raman spectroscopy, VNIR, and TEM work.

Gil-Lozano C. Mateo-Marti E. Gago-Duport L. Losa-Adams E. Chevrier V. et al. POSTER LOCATION #559
Exploring the Mineral Sequences That Can Be Formed from a Disulfide-Rich Soil on Early Mars [#2021]
We investigate the mineral sequences arising from considering pyrite as a primary mineral on the surface of Mars, using lab experiments and geochemical models.

Frushour A. M. Bish D. L. POSTER LOCATION #560
Laboratory Studies of Smectite Chloritization: Applications to the Clay Mineralogy of Gale Crater, Mars [#2662]
Clay mineral could / Be chloritized smectite / At Gale Crater, Mars.

Graham D. H. Cawley J. C. POSTER LOCATION #561
Alkali Silica Reactivity a Problem on Earth, a Solution on Mars [#2209]
Alkali silica reactivity may have been significant in the weathering and erosional process of martian regolith.

Perry S. E. Rampe E. B. POSTER LOCATION #562
Identifying Partially Chloritized Smectite at Gale Crater, Mars [#1628]
Experiments were conducted to see if partially chloritized smectite explains the 13.2 Å 001 peak at the Cumberland drill site.

Niles P. B. Peretyazkho T. S. Sutter B. POSTER LOCATION #563
Fe(II) Oxidation and Sources of Acidity on Mars [#2795]
Dissolution, oxidation of Fe(II), and hydrolysis of Fe(III) derived from silicate minerals are not a net source of martian acidity. Volcanic SO2 is sufficient.

Bell M. S. POSTER LOCATION #564
Experimentally Shocked and Altered Basalt: VNIR Spectra of Mars Analog Materials [#2917]
Mars-like weathering experiments on experimentally shocked Mars analog basalt were conducted to produce a reference set of samples for VNIR spectral analysis.

Edwards H. R. Craig P. I. POSTER LOCATION #565
Insights into the Early Geologic Era of Mars Through Acid-Sulfate Vapor Weathering of Phyllosilicates [#1260]
Understanding the presence of phyllosilicates adjacent to sulfate minerals on the surface of Mars via experimentally simulated acid-sulfate vapor weathering.
Oxidative Alteration of Ferrous Smectites: A Formation Pathway for Martian Nontronite?  
We show experimentally that martian ferric smectites can form by oxidation of ferrous smectite precursors, suggesting reducing conditions during the Noachian.

Can We Use Pyroxene Weathering Textures to Interpret Aqueous Alteration Conditions? Yes and No. 
Qualitative pyroxene assessment supports aqueous dissolution rates. Quantitative analysis is not a viable tool for aqueous pyroxene alteration.

Albite Dissolution in High Salinity Brines Indicates Limited Aqueous Alteration on Post-Noachian Mars 
Brines dissolve albite / Slowly when concentrated / Water activity key.

Noachian Trachytes Explained by Low-Degree Melting of a Volatile-Bearing Martian Mantle 
We modeled the equilibrium crystallization–degassing of melts from a CHO-bearing mantle at various pressures and compared the results to martian alkaline lavas.

Diagenesis on Mars: Insights Into Noble Gas Pathways and Newly Formed Mineral Assemblages from Long Term Experiments 
Long-term alteration experiments are presented with results from alteration mineralogy and noble gas adsorption, both relevant to the nakhlite meteorites.

Synthesis of Na-Bearing Whitlockite and Implications for Interpretation of Extraterrestrial Phosphate Minerals 
We discuss results of experiments to incorporate Na into whitlockite and the implications for extraterrestrial phosphate minerals such as merrillite.

Siderite Dissolution Kinetics in Mars-Analog Brines 
Experiments done to determine dissolution rates of siderite in Mg-based brines, and the implications this may have for martian surface processes.

Attenuation of UV Radiation in Rocks and Minerals: Implications for Biosignature Preservation and Detection on Mars 
The attenuation of UV radiation varies depending on rock and mineral type, with detectable levels of UV penetrating >500 μm in all sample types investigated.
Ertem G. McKay C. P. Hazen R. M. POSTER LOCATION #575
Protection of Biomolecules by Martian Analogue Minerals Against the Effects of Radiation [#2941]
Martian analogue-biomolecule mixtures were UV irradiated in a Martian Simulation Chamber, and by gamma.
Organics were extracted and analyzed.

DiFrancesco N. J. Yant M. Nekvasil H. Rogers A. D Lindsley D. H. POSTER LOCATION #576
Effects of Magmatic Vapor Mineral Deposition on IR Spectra of Martian Soil Constituents [#1325]
Gases from lava / Make salty surface coatings / Obscuring spectra.