

Tuesday, March 22, 2016

[T318]

POSTER SESSION I: AQUEOUS ALTERATION ON MARS: A COMPLEX HISTORY

6:00 p.m. Town Center Exhibit Area

Schwenzer S. P. Bullock M. A. Bridges J. C.

Chavez C. L. Filiberto J. et al.

POSTER LOCATION #273

[*Noble Gas Fractionation in Hydrous Rock Alteration Under Diagenetic Pressure and Temperature Conditions*](#) [#1889]

Long-term alteration experiments are presented with results from alteration mineralogy and noble gas adsorption, both relevant to the nakhlite meteorites.

Saetre C. Riu L. Dypvik H. Hellevang H. Pilorget C. et al.

POSTER LOCATION #274

[*Experimental Studies on Liquid and Vapor Phase Alteration of Basaltic Glass: Implications for Earth and Mars*](#) [#1865]

We perform hydrothermal alteration experiments to study weathering and alteration of amorphous phases in various hydrous regimes with a martian perspective.

Fairen A. G. Gil-Lozano C. Losa-Adams E.

Gago-Duport L. Uceda E. R. et al.

POSTER LOCATION #275

[*Introducing Fully Open Systems in the Kinetic Modeling of Divergent Mineral Sequences on Mars*](#) [#1101]

Highly fractured basalt (large reactive surface) would form clays, while massive basalt (small reactive surface) would result in the precipitation of salts.

Black S. R. Hynek B. M. Hoover R. Beckerman L. G. Alvarado G. E.

POSTER LOCATION #276

[*Characterization of Hydrothermal Alteration in Costa Rica: Mineralogy, Methodology, and Implications for Mars*](#) [#2546]

Investigating the effects of primary lithology on secondary mineralogy in hydrothermal regions, and identification via Mars analog instrumentation.

Losa-Adams E. Gil-Lozano C. Fairen A. G.

Chevrier V. Davila A. F. et al.

POSTER LOCATION #277

[*Using a Reverse Osmosis Reactor to Model the Crystallization of Secondary Minerals in Mars During Long-Term Evaporation Processes*](#) [#3063]

We used by batch reactors connected to reverse osmosis (RO) membranes to model long-term evaporation processes on Mars.

Parnell S. P. Phillips-Lander C. M. McGraw L. E. Elwood Madden M. E.

POSTER LOCATION #278

[*Carbonate Dissolution Rates in High Salinity Brines*](#) [#1460]

Calcite and magnesite experiments show slower dissolution rates in high salinity brines.

Phillips-Lander C. M. Legett C. Parnell S. R.

Elwood Madden A. S. Elwood Madden M. E.

POSTER LOCATION #279

[*Pyroxene Dissolution Rates in High Salinity Brines: Implications for Post-Noachian Aqueous Alteration on Mars*](#) [#1313]

Initial dissolution rates for ultrapure water nearly $\sim 10\times$ slower than NaCl and Na₂SO₄ brines. These differences are not linked to pH, but aqueous complexation.

Dehouck E. McLennan S. M. Sklute E. C. Dyar M. D.

POSTER LOCATION #280

[*Stability of 2-Line Ferrihydrite at Gale Crater, Mars: Experimental Approach*](#) [#2223]

We present lab experiments exploring the stability of two-line ferrihydrite in various conditions relevant to Mars in general, and Gale crater in particular.

Craig P. I. Ming D. W. Rampe E. B. Morris R. V. **POSTER LOCATION #281**
[Insights into the Aqueous History of Mars from Acid-Sulfate Weathered Phyllosilicates](#) [#2434]

Acid sulfate-weathered phyllosilicates may explain observations of sulfates and phyllosilicates in close proximity to each other on Mars.

Melwani Daswani M. Kite E. S. **POSTER LOCATION #282**
[Late-Stage Weathering and Chlorapatite Dissolution as a Possible Source for Chlorides on the Martian Surface](#) [#2681]

Chlorides in dry lakes / Where did the chlorine come from? / Phosphate unlikely.

Filiberto J. Knafelc J. Dyar M. D. Ferré E. C. Friedman S. A. et al. **POSTER LOCATION #283**
[Olivine Oxidation and Implications for Planetary Surface Processes](#) [#2171]

Fo-Oxidation / Hematite dominates but / Magnetite as well.

Hausrath E. M. Goetz W. Cousin A. Wiens R. C. Meslin P.-Y. et al. **POSTER LOCATION #284**
[Signs of Transport of Chemical Elements and Soil-Forming Processes in Surface Soils at Gale Crater, Mars](#) [#2493]

Millimeter-scale depth profiles measured by ChemCam across vertical soil faces at Gale Crater were examined for chemical transport and soil-forming processes.

Crumpler L. S. Arvidson R. E. Mittlefehldt D. W. Jolliff B. L. Farrand W. H. et al. **POSTER LOCATION #285**
[Opportunity, Geologic and Structural Context of Aqueous Alteration in Noachian Outcrops, Marathon Valley and Rim of Endeavour Crater](#) [#2272]

In situ study of outcrops by Opportunity at Endeavour crater identifies the context of smectite detection in crater rims throughout Noachian terrains of Mars.

Nickerson R. D. Chemtob S. M. Catalano J. G. **POSTER LOCATION #286**
[Clay Formation and Iron Partitioning During Anoxic Isochemical Hydrothermal Basalt Alteration: Implications for Formation of Fe Smectites on Early Mars](#) [#2458]

Anoxic hydrothermal alteration of basalt produced a ferrous smectite structurally similar to clays found on Mars. May be a globally relevant process.

Sheppard R. E. Milliken R. E. Russell J. M. **POSTER LOCATION #287**
[Mineralogical and Chemical Characterization of Cores from Lake Towuti, Indonesia as a Comparative Study for Curiosity Observations at Gale Crater, Mars](#) [#2680]

Analyses of the mineralogy and chemistry of core samples from Lake Towuti, Indonesia, a potential modern analogue to the paleolake basin Gale Crater.

Gellert R. Berger J. A. Boyd N. Campbell J. L. Desouza E. D. et al. **POSTER LOCATION #288**
[Chemical Evidence for an Episode of Acidic Leaching at the Base of Mount Sharp, Gale Crater, Mars, as seen by the APXS](#) [#2368]

MSL APXS data indicate large scale acidic leaching at the base of Mount Sharp by elevated Si, S, Ti. Various elemental trends with SiO₂ will be discussed.

Thompson L. M. Schmidt M. E. Gellert R. Spray J. G. MSL APXS Team **POSTER LOCATION #289**
[APXS Compositional Trends Along Curiosity's Traverse, Gale Crater, Mars: Implications for Crustal Composition, Sedimentary Provenance, Diagenesis, and Alteration](#) [#2709]

MSL APXS rock compositions reveal regional and stratigraphic trends, sedimentary provenance, diagenesis, and alteration history; and Gale crustal composition.

Newsom H. E. Belgacem I. Jackson R. Ha B. Vaci Z. et al. **POSTER LOCATION #290**
[The Materials at an Unconformity Between the Murray and Stimson Formations at Marias Pass, Gale Crater, Mars](#) [#2397]

After Stimson deposition on unaltered Murray, diagenesis of lowermost Stimson involved calcium sulfate as veins and cement, and enrichment of SiO₂ up to 75 wt%.