Monday, March 1, 2010
MARTIAN ALTERATION PROCESSES: IN THE LABORATORY, FROM ORBIT, AND IN SITU
8:30 a.m. Waterway Ballroom 4

**Chairs:** Albert Yen
Debra Buczkowski

8:30 a.m. Kraft M. D. * Rogers A. D. Fergason R. L. Michalski J. R. Sharp T. G.
*Spectral and Geomorphic Evidence for Chemical Weathering in the Icy Plains of Acidalia Planitia, Mars [#2600]*
Known compositional differences in high-silica materials of Acidalia Planitia are explored in detail with THEMIS data. They are closely correlated to periglacial features, suggesting aqueous alteration in icy soil environments in northern Acidalia.

8:45 a.m. Arvidson R. E. * Athena Science Team
*Recent Scientific Results from Spirit’s Observations of Sulfate Sands on the Side of Scamander Crater, Columbia Hills, Mars [#1247]*
Spirit has observed sulfate enriched material at Scamander crater that is interpreted to have formed via aqueous processes associated with early volcanism and later redistributed in association with orbitally-induced climate change.

9:00 a.m. McGlynn I. O. * McSween H. Y. Fedo C. M. Rogers A. D.
*Indications of Water-limited Alteration from Martian Soil Mineralogy [#2166]*
The physical and chemical weathering of basaltic soils is characterized through the evaluation of mineralogical changes, regional differences, and the timing and mechanisms of alteration, in sediments at Gusev Crater and Meridiani Planum.

9:15 a.m. Yen A. S. * Clark B. C. Ming D. W. Mittlefehldt D. W. Gellert R. Morris R. V.
*Chemical Alteration on Mars Indicated by the Iron-Manganese Ratio [#2546]*
The iron-manganese ratio can be used to establish the extent of aqueous weathering in samples analyzed by the Mars Exploration Rovers.

9:30 a.m. Wendt L. * Gross C. Kneissl T. Sowe M. Combe J.-P. LeDeit L. McGuire P. C. Neukum G.
*Sulfates and Iron Oxides in Ophir Chasma, Mars [#1699]*
We identified sulfates, including jarosite, and iron oxides in Ophir Chasma around and within Ophir Mensa, based on OMEGA and CRISM data. This suggests sulfate formation both before or during ILD deposition and after their erosion.

*Confirmation of Soluble Sulfate at the Phoenix Landing Site: Implications for Martian Geochemistry and Habitability [#2199]*
The Wet Chemistry Lab on the Phoenix Mars Lander has identified soluble sulfate in the soil, allowing for better accounting of soluble salts and indicating that under past conditions, a ratio of liquid water to soil > a few percent by mass could have led to habitable brines.

10:00 a.m. Milliken R. E. * Bish D. L. Bristow T. Mustard J. F.
*The Case for Mixed-layered Clays on Mars [#2030]*
We discuss the importance of mixed-layered clays in constraining crustal fluid circulation and heat flow, as well as the possibility that previously reported smectite clays may in fact be mixed-layered clays.
10:15 a.m. Noe Dobrea E. Z. * Swayze G.  
**Acid Pedogenesis on Mars? Evidence for Top-Down Alteration on Mars from CRISM and HiRISE Data [#2620]**  
We present evidence that suggests that at least some parts of Mars underwent a period of acid pedogenic alteration.

10:30 a.m. Flahaut J. * Clenet H. Mustard J. F. Quantin C. Allemand P.  
**Phyllosilicates and Low Calcium Pyroxene-rich Noachian Crust Exposures in the Walls of Valles Marineris, Mars [#1524]**  
The walls of Valles Marineris present the most well-exposed cross-sections through the martian crust. The present survey investigates this geologic record with CRISM and HiRISE data, revealing some very interesting mafic and hydrated mineralogies.

10:45 a.m. Lee C. B. * Park S. J.  
**Phyllosilicate Bearing Deposits at Mawrth Vallis: Stratigraphy and Possible Formation Processes [#2138]**  
This paper suggests that both weathering and hydrothermal alteration processes contribute to the stratigraphic development of phyllosilicates at Mawrth Vallis region.

11:00 a.m. Buczkowski D. L. * Seelos K. D. Murchie S. Seelos F. Malaret E. Hash C. CRISM Team  
**Extensive Phyllosilicate-bearing Layer Exposed by Valley Systems in Northwest Noachis Terra [#1458]**  
Evidence for a widespread phyllosilicate-bearing layer has been identified in a distinct region in northwest Noachis Terra.

11:15 a.m. Velbel M. A. * Stopar J. D. Taylor G. J. Vicenzi E. P.  
**Aqueous Alteration of Olivine in Mars Meteorite MIL 03346: Corrosion Textures and Redistribution of Elements in Alteration Products [#2223]**  
Textural observations help distinguish terrestrial from pre-terrestrial aqueous alteration of olivine and associated alteration products in Mars meteorite MIL 03346.

11:30 a.m. Grotzinger J. P. *  
**Mars Science Laboratory, Preservation Potential of Biosignatures and Environmental Records, and the Attributes of Promising Landing Sites [#2726]**  
MSL will investigate a site that shows clear evidence for ancient aqueous processes based on orbital data and undertake the search for past and present habitable environments.