

Friday, March 14, 2008
MARS SULFATES, PHYLLOSILICATES, AND THEIR AQUEOUS SOURCES
8:30 a.m. Crystal Ballroom A

Chairs: **D. L. Bish**
H. Nekvasil

- 8:30 a.m. Wiseman S. M. * Arvidson R. E. Murchie S. L. Poulet F. Andrews-Hanna J. C. Morris R. V. Seelos F. P. CRISM Team
Phyllosilicate and Hydrated Sulfate Deposits in Meridiani [#1806]
 Phyllosilicate and sulfate deposits in Meridiani have been mapped with high resolution MRO CRISM data. The transition on Mars to an acid sulfate ground water system may be recorded in the phyllosilicate and layered deposits within Miyamoto crater.
- 8:45 a.m. Noe Dobra E. Z. * Bishop J. L. McKeown N. K. Swayze G. Michalski J. R. Poulet F. Bibring J.-P. Mustard J. F. Ehlmann B. L. Arvidson R. E. Morris R. V. Murchie S. L. McEwen A. S. Malaret E. Hash C. CRISM Team
Clay Bearing Units in the Region Around Mawrth Vallis: Stratigraphy, Extent, and Possible Alteration Fronts [#1077]
 We use CRISM FRT hyperspectral data and HiRISE/CTX images to constrain the mineralogy, extent, and stratigraphy of the clay units in Western Arabia. We find a coherent regional pattern and identify a possible alteration front.
- 9:00 a.m. Loizeau D. * Mangold N. Poulet F. Ansan V. Hauber E. Bibring J.-P. Langevin Y. Gondet B. Masson Ph. Neukum G.
Stratigraphy of the Mawrth Vallis Region through OMEGA, HRSC Color Imagery and DTM [#1586]
 In the Mawrth Vallis region, a method using HRSC color imagery and DTM on outcrops of the phyllosilicate-rich unit detected by OMEGA helps to retrieve the geometry of this unit and to specify the most scientifically relevant potential landing sites.
- 9:15 a.m. Roach L. H. * Mustard J. F. Murchie S. L. Bibring J.-P. Arvidson R. E. Bishop J. L. Milliken R. E. Seelos F. P. CRISM Science Team
Constraints on the Rate of Sulfate Phase Changes in Valles Marineris Interior Layered Deposits [#1823]
 Spectral and geomorphic interpretations of two multiple-sulfate bearing ILDs suggest either exposure of a diverse sulfate evaporite sequence or recent, dynamic hydration of kieserite. Paired OMEGA and CRISM data spaced one year apart constrain rate.
- 9:30 a.m. Moore J. M. * Bullock M. A. Newsom H. E. Nelson M. J.
Laboratory Simulations of Mars Evaporite Geochemistry [#1955]
 We have produced evaporite suites in the laboratory under Mars-like conditions. We conclude that the salts that make up the Meridiani sediments were probably formed by the interaction of rocks at a high water-to-rock ratio with a SO₂-rich atmosphere.
- 9:45 a.m. Nekvasil H. * McCubbin F. M. Tosca N. J. Smirnov A.
Hydrothermal Activity on Mars: Can Magmatic Waters play a Viable Role? [#1828]
 Based on studies of the Chassigny meteorite and MIL 03346, martian magmatic fluids can give rise to phyllic alteration, jarosite/hematite assemblages, and highly acidic vapors that yield high silica assemblages in fumeroles.
- 10:00 a.m. Schwenzer S. P. * Kring D. A.
Inferred Impact-generated Hydrothermal Mineral Assemblages in Basaltic Regions of Mars [#1817]
 We explore alteration mineral assemblages produced in hydrothermal systems as a function of depth, temperature, and water/rock ratios, which are then compared to OMEGA data.

- 10:15 a.m. Berger G. * Treguier E. d'Uston C. Pinet P. Toplis M. J.
The Role of Volcanic Sour Gas on the Alteration of Martian Basalt: Insights from Geochemical Modeling [#1809]
We assess the chemical constraints of the alteration of basaltic material by a cold aqueous phase under atmospheric sour gas containing SO₃. Secondary chemistry and mineralogy are calculated by a geochemical simulator and compared to MER data.
- 10:30 a.m. Chevrier V. F. * Altheide T. S.
Low-Temperature Aqueous Fluids on Mars [#1176]
Ferric sulphate solutions remain liquid at average martian surface temperatures, down to 201 K, and present very low evaporation rates, which make them the best candidates to explain the formation of martian flow features and gullies.
- 10:45 a.m. Fleischer I. * Klingelhöfer G. Morris R. V. Rodionov D. Blumers M. Bernhardt B. Schröder C. Ming D. W. Yen A. S. Cohen B. A. McCoy T. J. Mittlefehldt D. W. Schmidt M. E. Gironz Lopez J. Studlek G. Brückner J. Gellert R. d'Uston C.
The Miniaturised Mössbauer Spectrometers MIMOS II on MER: Four Years of Operation — A Summary [#2323]
The two Miniaturised Mössbauer Spectrometers MIMOS II on board the two Mars Exploration Rovers Spirit and Opportunity have been collecting important scientific data for more than four years.
- 11:00 a.m. Tosca N. J. * Milliken R. E. Wyatt M. B. McLennan S. M.
Clay Minerals and Poorly Crystalline Silicates: Unraveling Paleo-Acidity at the Martian Surface [#1745]
We discuss experimental studies focused on the formation and role of poorly crystalline silicates at the martian surface. Results show that these phases share similar chemical and IR spectroscopic properties with clay minerals but form at acid pH.
- 11:15 a.m. Bish D. L. * Vaniman D. T. Blake D. Sarrazin P. Chipera S. J.
X-Ray Diffraction Analysis of Clay Mineral Associations to Determine Alteration Environments on Mars [#1256]
The X-ray diffraction instrument CheMin can be used to discriminate between different alteration phases, such as clay minerals and amorphous phases, information that is crucial to interpreting Mars' hydrologic and geochemical histories.
- 11:30 a.m. Gavin P. * Chevrier V. F. Ninagawa K.
Effect of Impact and Heating on the Spectral Properties of Clays on Mars [#2033]
NIR reflectance and XRD studies of meteoritic impact effect on martian clays show that impact alone has a negligible effect while heating strongly affects their structure, through water loss and transition to new phases at high temperature.