

**Friday, March 14, 2008**  
**ANALOGS: ENVIRONMENTS AND MATERIALS**  
**8:30 a.m. Amphitheater**

**Chairs:** A. Steele  
 S. L. Potter

- 8:30 a.m. Steele A. \* Amundsen H. E. F. Conrad P. G. Fogel M. L. Benning L. AMASE 07 Team  
*Arctic Mars Analogue Svalbard Expedition 2007* [#2368]  
 We describe the activities that took place on the Arctic Mars Analogue Svalbard Expedition in 2007.
- 8:45 a.m. Marchant D. R. \* Head J. W. III  
*Kilometer-Thick Ice-Sheets in the Northern Mid-Latitudes in the Amazonian: Analogs from the East Antarctic Ice Sheet and the Dry Valleys* [#2097]  
 Dry Valley debris-covered glaciers are the last stages of a previously much larger East Antarctic ice sheet and provide clues to the extent of the plateau icefield that covered the Mars dichotomy boundary in the Amazonian; LVF/LDA represent the waning stages.
- 9:00 a.m. Durham W. B. Pathare A. V. \* Stern L. A.  
*The Brittle-to-Ductile Transition of Icy Materials on Mars* [#2315]  
 We present low-temperature experimental runs characterizing the brittle-to-ductile transition in icy materials on Mars, which constrains the global volatile inventory. These runs also reveal the onset of transient creep at very low ice content.
- 9:15 a.m. Dinwiddie C. L. \* Sizemore H. G.  
*JSC Mars-1 Soil Moisture Characteristic and Soil Freezing Characteristic Curves for Modeling Bulk Vapor Flow and Soil Freezing* [#2394]  
 A new JSC Mars-1 particle size distribution is used to establish soil moisture characteristic and soil freezing characteristic curves that are needed for modeling bulk (Darcy) vapor flow and soil freezing in the variably saturated subsurface of Mars.
- 9:30 a.m. Pommerol A. \* Schmitt B. Brissaud O.  
*Experimental Study of Water Exchange Between Regolith and Atmosphere Under Martian Conditions: Thermodynamics and Spectroscopy* [#1874]  
 We have designed a facility to measure near-infrared reflectance spectra of martian regolith analogs under martian surface temperature and humidity. We present adsorption isotherm and exchange kinetics between water and JSC Mars-1 regolith simulant.
- 9:45 a.m. Moores J. E. \* Smith P. H. Brown R. H. Laretta D. S. Boynton W. V. Drake M. J.  
*Experimental Results on Isotopic Fractionation of Dusty Deuterated Water Ice During Sublimation* [#1312]  
 Observed heavy fractionation of HDO during sublimation of water ice when mixed with or overlain by (regolith) fine particulate dust is described. Results from two sets of apparatus simulating comets and the Mars polar environment will be presented.
- 10:00 a.m. White K. F. \* Chevrier V. Roe L. Bryson K. L.  
*Sublimation Kinetics of CO<sub>2</sub> Ice on the Surface of Mars* [#1178]  
 The details of CO<sub>2</sub> sublimation in a CO<sub>2</sub> atmosphere have deep implications for the dynamics of the polar caps on the martian surface. Experiments measuring the sublimation rate of pure CO<sub>2</sub> ice under simulated martian conditions were performed to explore these implications.
- 10:15 a.m. Bonaccorsi R. \* McKay C. P.  
*Organics and Total Biomass Along a N-S Moisture Gradient of the Atacama Region, Chile* [#1489]  
 Soils from a latitudinal moisture gradient (0.2–120 mm/y rainfall) in the Atacama Region can contain up to 10<sup>6</sup>–10<sup>8</sup> cell/g and increasing levels of organic C, i.e., 0.03–2.3wt.% Constraining such a complex/variable dry limit for life is relevant to astrobiology research.

- 10:30 a.m. Peeters Z. Quinn R. Martins Z. Becker L. Brucato J. R. Willis P. Grunthaner F. Ehrenfreund P. \*  
*Mars Regolith Analogues — Interactions Between Mineralogical and Organic Compounds* [#1742]  
We describe investigations of the physical and chemical properties of Mars soil analogues from the Atacama desert. We also investigated the influence of the mineralogical matrix on the stability of amino acids exposed to a simulated Mars environment.
- 10:45 a.m. Greenwood J. P. \*  
*Gypsum and Jarosite in Roberts Massif 04262: Antarctic(?) Weathering as a Proxy for Martian Weathering* [#2011]  
Gypsum and jarosite are forming in this martian basalt by the incipient weathering of calcium-phosphate and iron sulfide minerals, which may be an important process on Mars.
- 11:00 a.m. Golden D. C. Ming D. W. \* Morris R. V. Graff T. G.  
*Synthetic (Hydrothermal) Hematite-rich Mars Analog Spherules from Acid-Sulfate Brines: Implications for Formation and Diagenesis of Hematite Spherules in Outcrops at Meridiani Planum, Mars* [#2053]  
We synthesized hematite spherules whose chemical mineralogical and crystallographical properties are similar to those of Meridiani Planum, Mars, by hydrothermal heating of acid-sulfate brines similar to what has been proposed for early Mars.
- 11:15 a.m. Potter S. L. \* Chan M. A. Petersen E. U.  
*Mineralogical Characterization of Navajo Sandstone Iron Oxide Concretions Using QEMSCAN and Reflectance Spectroscopy; Analogue for Martian Diagenetic Processes* [#1230]  
The Navajo Sandstone concretions were evaluated to detect mineralogical changes and chemical gradients. Sequential relationships suggest an evolution of phases of cements. The Mars “blueberries” may have a similar evolution of cements.
- 11:30 a.m. Sefton-Nash E. \* Catling D. C.  
*Hematitic Concretions at Meridiani Planum, Mars: Their Growth Timescale and Probable Sourcing of Iron from Iron Sulfates* [#1249]  
Hematitic concretions at Meridiani Planum, Mars: A study to model their growth timescales and a quantitative discussion of their relationship with iron sulfates.