Thursday, March 13, 2008
POSTER SESSION II: ROCKET SCIENTIST'S TOOLBOX II: *IN SITU* ANALYSIS
6:30 p.m. Fitness Center

Sollitt L. S. Beegle L. W.
Laser Infrared Desorption Spectroscopy to Detect Complex Organic Molecules on Planetary Surfaces **[#2242]**
A concept for a novel instrument to detect complex organic molecules on icy planetary surfaces is described; expected signal and signal-to-noise ratios are calculated for various instrument parameters.

Dyar M. D. Clegg S. M. Barefield J. E. II Wiens R. C. Sklute E. C. Schaefer M. W.
Approaches to Matrix-Effect Corrections in Laser-induced Breakdown Spectroscopy of Geologic Samples **[#2146]**
Multivariate analysis provides a means of accommodating matrix effects and extracting quantitative chemical data from LIBS spectra.

Lanza N. L. Ollila A. M. Clegg S. M. Barefield J. E. II Newsom H. E. Wiens R. C.
Identifying Carbonate Rocks in a Martian Environment Using LIBS **[#2299]**
We examine carbonate samples in a simulated martian environment using LIBS to better understand their signature should MSL encounter them. Composition and rock type are determined using multivariate analysis techniques and confirmed with the SEM.

Lentz R. C. F. Sharma S. K. Misra A. K. Clegg S. M. Clark R. N.
Laser-induced Breakdown Spectroscopy (LIBS) of Phyllosilicates: Preparing for ChemCam on Mars **[#2015]**
We present preliminary results from LIBS measurements of several phyllosilicates in the UV and VIS wavelengths. This begins a project to examine the effects of hydrous alteration on rock compositions that will be analysed by ChemCam on MSL.

Clegg S. M. Wiens R. C. Barefield J. E. II Dyar M. D. Delaney J. S. Ashley G. M. Driese S. G.
Simulated ChemCam Laboratory Investigations of East African Rift Sedimentary Samples **[#2107]**
The East African Rift (EAR) system may be a good Earth analogue for martian surface sediments. Seventeen EAR samples were probed with a remote LIBS instrument designed to replicate the ChemCam instrument at a 9 m standoff distance.

Fletcher L. A. Allen C. C. Bastien R.
Curation of Frozen Samples **[#2202]**
We discuss the design, installation, and testing of a cold glovebox system to be used for the curation of future frozen samples.

Agresti D. G. Gerakines P. A.
Simfitting: A New Approach to MER Mössbauer Data Analysis **[#2118]**
We introduce a simultaneous fitting method that reduces parameter correlations and can lead to convergence of otherwise unfittable spectra. We apply it to three cases from the MER data set to show the capabilities and advantages of simfitting.

Peters G. H. Beegle L. W. Mungas G. S. Anderson R. C. Bearman G. H.
Rapid Sample Acquisition and Processing for In Situ Missions **[#2278]**
RASP systems are sample acquisition and processing tools. Conceived for the Phoenix mission, they are capable sample handling tools for acquiring rock, creating powder, and delivery to analytical instruments, revealing un-weathered stratigraphy.

Sisterson J. M. Reedy R. C. Nishiizumi K.
Dependence of Energy Integrated Cross Sections of Neutron-induced Reactions of the Neutron Energy Spectrum **[#1413]**
Status of measurements of cross sections for neutron-induced reactions that are needed as input to model calculations used to interpret cosmogenic nuclides. Average cross sections have been measured using two different neutron energy spectra.

Reedy R. C.
Cosmogenic Nuclide Decay Peaks Made in Germanium Gamma-Ray Detectors **[#1894]**
The peaks made in Ge detectors by cosmic-ray-produced radionuclides are discussed and presented. Only decays by internal transitions or electron capture produced peaks. Such peaks often interfere with peaks for γ rays of interest.

Reedy R. C.
Cross Sections for Producing Some Light-Noble-Gas Nuclides **[#1907]**
Cross sections for making ^{3}He, ^{20}Ne, ^{21}Ne, and ^{22}Ne (including ^{3}H and ^{22}Na decay) from major target elements were compiled and evaluated for proton reactions and, for Ne isotopes from Mg, for neutron reactions.

Evans L. G. Reedy R. C. Starr R. D. Kerry K. E. Boynton W. V.
Detection of Additional Elements from the Mars Odyssey GRS Measurements **[#1875]**
Analysis of data by the Odyssey GRS has produced compositional maps for six elements. Analysis has produced preliminary results for Al, Ca, S, and U that may be mapped at lower resolutions. Additional results for Na, Mn, and Cr are more difficult, but possible.

Ranen M. C. Jacobsen S. B.
Fractionation Corrections for High-Precision Multi-Collector Thermal Ionization Mass Spectrometry **[#1966]**
We present data on Ba isotopes suggesting that for high-precision isotopic measurements a Rayleigh law is a better way to correct for instrument fractionation than the exponential law.