

**Monday, March 16, 2015**  
**GALE CRATER, MARS: GEOMORPHOLOGY AND GEOCHEMISTRY**  
**8:30 a.m. Waterway Ballroom 4**

[M102]

**Chairs:** Douglas Ming  
 Ashwin Vasavada

- 8:30 a.m. Vasavada A. R. \* Grotzinger J. P. Gupta S. Haberle R. M. Mischna M. A. et al.  
[\*What Can Curiosity's Study of Gale Crater Tell Us About Mars' Ancient Climate?\*](#) [#2161]  
 Curiosity's study of ancient fluvial and lacustrine environments within Gale Crater has placed new constraints on Mars' ancient climate.
- 8:45 a.m. Lewis K. W. \* Dietrich W. E. Edgar L. A. Grotzinger J. P. Gupta S. et al.  
[\*Physical Stratigraphy Along the Curiosity Traverse and the Transition to Mount Sharp\*](#) [#2698]  
 Orbital and rover-based observations are combined to understand the transition between the sediments of the Gale Crater plains and the base of Mount Sharp.
- 9:00 a.m. Stack K. M. \* Grotzinger J. P. Gupta S. Kah L. C. Lewis K. W. et al.  
[\*Sedimentology and Stratigraphy of the Pahrump Hills Outcrop, Lower Mount Sharp, Gale Crater, Mars\*](#) [#1994]  
 MSL Curiosity's first analysis of the sedimentology and stratigraphy of lower Mount Sharp strata.
- 9:15 a.m. Milliken R. E. \* Hurowitz J. A. Grotzinger J. Wiens R. Blaney D. et al.  
[\*The Chemostratigraphy of Lower Mt. Sharp: Using Rover-Scale Observations to Test Orbital-Scale Hypotheses\*](#) [#2339]  
 We use MSL ChemCam and APXS data to determine chemostratigraphic trends at Pahrump Hills for comparison to orbital CRISM signatures of hydrated phases.
- 9:30 a.m. Thompson L. M. \* Gellert R. Spray J. G. Kah L. C. APXS Team et al.  
[\*The Composition of the Basal Murray Formation at Pahrump Hills, Gale Crater, Mars\*](#) [#1429]  
 The APXS compositions of the sedimentary strata at the base of Mount Sharp, reveal information regarding their regional context and post-depositional history.
- 9:45 a.m. Gellert R. \* Berger J. A. Boyd N. Campbell J. L. Desouza E. D. et al.  
[\*Chemical Evidence for an Aqueous History at Pahrump, Gale Crater, Mars, as Seen by the APXS\*](#) [#1855]  
 Pahrump is different from previous areas in Gale. Lower Mg, Ca, Fe, higher Al, Si, P, elevated Se and Pb and MgSO<sub>4</sub> features indicate multiple aqueous events.
- 10:00 a.m. Cavanagh P. D. \* Bish D. L. Blake D. F. Vaniman D. T. Morris R. V. et al.  
[\*Confidence Hills Mineralogy and CheMin Results from Base of Mt. Sharp, Pahrump Hills, Gale Crater, Mars\*](#) [#2735]  
 The MSL/CheMin X-ray diffractometer completed five nights of analysis on the Confidence Hills sample. Analysis and quantitative mineralogy are presented.
- 10:15 a.m. Kah L. C. \* Kronyak R. Van Beek J. Nachon M. Mangold N. et al.  
[\*Diagenetic Crystal Clusters and Dendrites, Lower Mount Sharp, Gale Crater\*](#) [#1901]  
 Crystal clusters and dendrites at Pahrump, Gale Crater, result from interparticle crystal growth of diagenetic fluids through a mudstone matrix.
- 10:30 a.m. Wiens R. C. \* Maurice S. Gasnault O. Clegg S. M. Fabre C. et al.  
[\*Centimeter to Decimeter Size Spherical and Cylindrical Features in Gale Crater Sediments\*](#) [#1249]  
 Hollow, dark-toned multi-centimeter spheres and larger cylindrical features suggest gas bubbles and collapse pipes, respectively, in Gale sediments.

- 10:45 a.m. McAdam A. C. \* Archer P. D. Jr. Sutter B. Franz H. B. Eigenbrode J. L. et al.  
[Major Volatiles from MSL SAM Evolved Gas Analyses: Yellowknife Bay Through Lower Mount Sharp](#) [#2323]  
We discuss trends in the major volatiles observed in SAM evolved gas analyses of Gale Crater samples to date and their implications.
- 11:00 a.m. Franz H. B. \*  
[The Isotopic Composition of Martian Atmospheric CO<sub>2</sub>: Measurements with the Sample Analysis at Mars \(SAM\) Quadrupole Mass Spectrometer](#) [#3005]  
One Mars year of observations suggests a seasonal cycle in CO<sub>2</sub> isotopes.
- 11:15 a.m. Niles P. B. \* Archer P. D. Heil E. McAdam A. Sutter B. et al.  
[Investigating CO<sub>2</sub> Reservoirs at Gale Crater and Evidence for a Dense Early Atmosphere](#) [#2840]  
Based on results from the MSL rover, the total amount of CO<sub>2</sub> in the Gale samples is lower than expected. It is possible that CO<sub>2</sub> exists in a more exotic form.
- 11:30 a.m. Thomson B. J. \* Fassett C. I. Buczkowski D. L. Seelos K. D.  
[How Much of the Sediment in Gale Crater's Central Mound was Fluvially Transported?](#) [#2280]  
Water, gently flowing on the ground. Can't move enough dirt to build a tall mound.
- 11:45 a.m. Parker T. J. \* Dietrich W. E. Palucis M. C. Calef F. J. Newsom H. E.  
[Banding and Terracing in Lower Mount Sharp \(Aeolis Mons\), Gale Crater: Comparisons to Recently-Exposed Strandlines in Lake Mead, SW USA](#) [#3003]  
Terracing in lower Mount Sharp, generally interpreted as stratigraphy, is similar in planform and profile shape to very young terrestrial strandlines.