POSTER SESSION II: IN SITU GEOCHEMICAL MEASUREMENTS ON MARS
6:00 p.m. Town Center Exhibit Area

Wiens R. C. Mangold N. Maurice S. Gasnault O. Clegg S. M. et al. POSTER LOCATION #600
Major-Element Compositions Seen by ChemCam Along the Curiosity Rover Traverse: The First 8,000 Observations [#1336]
Gale crater, Mars, displays highly diverse elemental chemistry representing different sedimentary inputs to the crater basin as well as diageneric fingerprints.

Sutter B. McAdam A. C. Rample E. B. Ming D. W. Mahaffy P. R. et al. POSTER LOCATION #601
Evolved Gas Analysis of Sedimentary Materials in Gale Crater, Mars: Results of the Curiosity Rover’s Sample Analysis at Mars (SAM) Instrument from Yellowknife Bay to the Stimson Formation [#2048]
A review along with the implications of the SAM detection of evolved H2O, SO2, CO2, and O2 from ten Gale Crater sediments will be presented.

Clark J. V. Sutter B. Morris R. V. Archer P. D. Ming D. W. et al. POSTER LOCATION #602
The Investigation of Chlorate/Iron-Phase Mixtures as a Possible Source of Oxygen and Chlorine Detected by the Sample Analysis at Mars (SAM) Instrument in Gale Crater, Mars [#1537]
Oxygen and HCl releases from chlorate/iron-phase mineral mixtures were compared with Sample Analysis at Mars (SAM) oxygen and HCl release data.

Thomas N. H. Ehlmann B. L. Clegg S. M. Forni O. Schröder S. et al. POSTER LOCATION #603
Characterization of Hydrogen in Basaltic Materials with Laser-Induced Breakdown Spectroscopy (LIBS) [#2494]
Univariate analysis of LIBS H emission from lab mineral+basalt mixtures and altered rocks for measurement of martian rock hydration in ChemCam spectra.

Rapin W. Chauviré B. Meslin P.-Y. Maurice S. Rondeau B. et al. POSTER LOCATION #604
Calibration of the ChemCam Hydrogen Signal from Opals [#2226]
Calibration of the LIBS hydrogen signal in order to constrain the water content of high silica deposits at Gale Crater.

Meslin P.-Y. Cicutto L. Forni O. Drouet C. Rapin W. et al. POSTER LOCATION #605
Calibration of the Fluorine, Chlorine, and Hydrogen Content of Apatites with the ChemCam LIBS Instrument [#1703]
We present laboratory LIBS analyses aimed at estimating the composition of apatites detected by the ChemCam instrument in Gale Crater, Mars.

Anderson D. E. Ehlmann B. L. Forni O. Clegg S. M. Cousin A. et al. POSTER LOCATION #606
Emission Lines Selected for the Identification of Chlorides, Carbonates, and Sulfates Dispersed in Basaltic Rock Using Laser-Induced Breakdown Spectroscopy (LIBS) [#2325]
Preliminary detection limits and sensitivity of Cl, C, and S lines in univariate analysis of LIBS spectra of salt+basalt mixtures with applications to ChemCam.

Tate C. G. Moersch J. Ehresmann B. Jun I. Hardgrove C. et al. POSTER LOCATION #607
Water Equivalent Hydrogen Abundances from Bradbury Landing to Amargosa Valley Using Passive Mode Data from the MSL Dynamic ALbedo of Neutrons Experiment [#1032]
WEH estimates derived from data taken over the traverse route of MSL over the Gale crater floor from Bradbury Landing to Amargosa Valley are shown.

Farris H. N. Conner M. B. Chevrier V. F. Rivera-Valentin E. G. POSTER LOCATION #608
Adsorption Driven Regolith-Atmospheric Water Vapor Transfer on Mars: Analysis of Phoenix TECP and MSL REMS Data [#2445]
Small amounts of adsorbed water at the surface of Mars explained by BET adsorption and regolith-centric parameters such as specific surface area.
Hood D. R.  Karunatillake S.  Susko D.  
*POSTER LOCATION #609*

**Assessing Martian Bulk Soil Hydration through Principal Component Analysis of Regional Chemical Data** [###2124]

Martian regional chemical data is analyzed to assess covariations in bulk soil. Our results suggest that sulfates play an important role in bulk soil hydration.

*POSTER LOCATION #610*

**Carbon Detection with ChemCam: Laboratory Studies and Mars Results** [###1826]

We discuss a laboratory approach to assess the detectability of carbon with ChemCam and present a possible detection in Hidden Valley soils.

Goetz W.  Wiens R. C.  Gasnault O.  Gellert R.  Newsom H.  et al.  
*POSTER LOCATION #611*

**Strong Enrichment in Copper in the Kimberley Area, Gale Crater, Mars** [###2942]

We show ChemCam, APXS, and image data of Cu-rich rocks at Kimberley. The goal is that Cu becomes a useful geochemical tracer on the surface of Mars.

Payré V.  Fabre C.  Cousin A.  Forni O.  Gasnault O.  et al.  
*POSTER LOCATION #612*

**Copper Abundances in Gale Crater: First ChemCam Calibration and Quantification** [###1347]

This abstract presents the first ChemCam copper calibration and quantification in the Mars Science Laboratory Mission.

Payré V.  Fabre C.  Cousin A.  Forni O.  Gasnault O.  et al.  
*POSTER LOCATION #613*

**Trace Elements in Gale Crater: Li, Sr, Rb, and Ba Abundances Using Chemcam Data** [###1348]

This is a review of trace elements calibration and quantification using ChemCam (MSL) and geological implications in Gale Crater, Mars.

*POSTER LOCATION #614*

**Evidence for a Volatile-Rich Layer on the Windjana Rock Target, the Kimberley, Gale Crater, Mars** [###2145]

A Br, Cl, and Mn-rich layer is evident in MSL APXS data on the Windjana target. It was likely deposited as fracture fill by low-temperature secondary fluids.

Tesselaar D.  Perrett G. M.  Gellert R.  Campbell J. L.  
*POSTER LOCATION #615*

**A Semi-Qualitative Analysis of Big Sky APXS Scatter Peaks** [###2190]

Using the scatter-peaks from the MSL APXS, it was seen that Big Sky has elevated amounts of some, as of yet, undetermined low Z component(s).

*POSTER LOCATION #616*

**Retrieval of Compositional Endmembers from Mars Exploration Rover Alpha Particle X-Ray Spectrometer Observations** [###1539]

A log-likelihood function is implemented to determine endmember oxide abundances using combined APXS and Pancam observations from the Mars Exploration Rover.

Cavanagh P. D.  Bish D. L.  
*POSTER LOCATION #617*

**Linear Programming Approach to Quantitative Mineralogy on Mars** [###2670]

Linear programming has been applied to CheMin and APXS data to constrain Rocknest phase abundances. Amorphous component abundance is estimated to be 29-33 wt %.
Mangold N. Thompson L. M. Forni O. Fabre C. Le Deit L. et al. POSTER LOCATION #618
Chemistry of Conglomerates Analyzed by the Curiosity Rover [#1614]
Conglomerates analyzed by Curiosity display two distinct chemical end-members. Conglomerates chemistry can be used as a proxy for Gale crater crust composition.

VanBommel S. J. Gellert R. Thompson L. M. Berger J. A. Campbell J. L. et al. POSTER LOCATION #619
Chemistry of Millimeter-Scale Petrographic Endmembers Determined by the Mars Science Laboratory Alpha Particle X-Ray Spectrometer and Mars Hand Lens Imager [#2023]
APXS rasters complemented by MAHLI images facilitate the chemical deconvolution of mm-scale features via 3D modeling and mathematical minimization.