MINERALOGY MEASURED BY MISSIONS TO MARS
1:30 p.m.  Waterway Ballroom 4

Chairs:  Paul Archer Jr
         Janice Bishop

1:30 p.m.  Sun V. Z. *  Milliken R. E.
Understanding Ancient and Recent Clay Formation on Mars from a Global Survey of Crater Central Peaks [1652]
We determine the depth and age of crustal clays and report very early Noachian (>3.93 Ga) clay formation as well as more recent (<2.5 Ga) impact-formed clays.

1:45 p.m.  McCollom T. M. *
Geochemical Trends in the Layered Sulfate Deposits at Meridiani Planum and Implications for Their Origin [1164]
Data indicate that nearly all elements were immobile during addition of SO4 to the deposits and favor atmospheric/volcanic sulfur sources over evaporite input.

2:00 p.m.  Viviano-Beck C. E. *
Early Hydrothermal Environments on Mars:  Tyrrhena Terra [2756]
The hydrothermal carbonation of serpentine in the greater Isidis region was likely an important factor for sequestration of CO2 on early Mars.

2:15 p.m.  Michalski J. R. *  Noe Dobea E. Z.  Weitz C. M.
Mg-Rich Clays and Silica-Bearing Deposits in Eridania Basin:  Possible Evidence for Ancient Sea Deposits on Mars [2754]
We detected silica and Mg-rich clays in deposits in Eridania Basin that, based on geologic context, likely formed in an ancient sea on Mars.

2:30 p.m.  Bishop J. L. *  Gross C.  Wray J. J.  Horgan B.  Viviano-Beck C. E.  et al.
Acid-Alteration at Mawrth Vallis Between the Older Fe/Mg-Rich Clays and the Younger Al/Si-Rich Clays [1455]
Spectral doublet at 2.21–2.23 and 2.26–2.28 µm attributed to acidic alteration of Fe/Mg-smectite at Mawrth Vallis.

Regional Context of Soil and Rock Chemistry at Gale and Gusev Craters, Mars [2284]
In situ geochemical data for rocks and soils from Gale Crater and Gusev Crater are compared with data from the Gamma Ray Spectrometer on Mars Odyssey.

3:00 p.m.  Arvidson R. E. *  Squyres S. W.  Gellert R.  Athena Science Team
Recent Results from the Opportunity Rover’s Exploration of Endeavour Crater, Mars [1118]
Results of Opportunity’s exploration of Endeavour’s rim are reported, including evidence for aqueous alteration of rocks on Murray Ridge and Cape Tribulation.

Opportunity In Situ Geologic Context of Aqueous Alteration Along Offsets in the Rim of Endeavour Crater [2209]
In situ mapping identifies outcrops with enhanced aqueous and low-grade thermal alteration at structural boundaries between Endeavour crater rim segments.
3:30 p.m. Ruff S. W. * New Observations Reveal a Former Hot Spring Environment with High Habitability and Preservation Potential in Gusev Crater, Mars [#1613]
Hot spring discharge channels at El Tatio, Chile, host microbial mats with sinter deposits that are remarkably similar to silica deposits next to Home Plate.

Germanium enrichment in Gale Crater sedimentary rocks may serve as a promising tracer for protolith compositions and alteration history.

4:00 p.m. Johnson J. R. * Wiens R. C. Maurice S. Blaney D. Gasnault O. et al. Chemcam Passive Reflectance Spectroscopy of Ferric Sulfates and Ferric Oxides Near the Base of Mt. Sharp [#1433]
ChemCam relative reflectance spectra (400–840 nm) of fresh surfaces and drill tailings near the base of Mt. Sharp suggest the presence of Fe sulfates and Fe oxides.

4:15 p.m. Treiman A. H. * Bish D. Ming D. W. Grotzinger J. Vaniman D. T. et al. Mineralogy and Genesis of the Windjana Sandstone, Kimberley Area, Gale Crater Mars [#2620]
The Windjana Sandstone is rich in alkali feldspar and in K₂O. It is not clear yet if these represent sediment from K-rich igneous rock, or potassic alteration.

A strong linear correlation between O₂ detected by SAM and Cl measured by APXS demonstrates the presence of oxychlorine species (perchlorate) in Gale Crater.

4:45 p.m. Stern J. C. * Sutter B. McKay C. P. Navarro-Gonzalez R. Freissinet C. et al. The Nitrate/Perchlorate Ratio on Mars as an Indicator for Habitability [#2590]
Low nitrate/perchlorate ratios of Gale Crater sediments suggest that nitrate deposition may have been limited to early Mars, prior to major atmospheric loss.