Thursday, April 27, 2017
SOLAR SYSTEM SITES: EARTH IN TIME/DEEP BIOSPHERE:
SUSTAINED HABITABILITY, LIFE, AND THE BIOSIGNATURES OF A DYNAMIC EARLY EARTH I
10:15 a.m. Arizona Ballroom D

Chairs: **Betul Kacar**
Timothy Lyons

10:15 a.m. Olson S. L. * Droser M. L. Gehling J. G. Lyons T. W.
Ediacaran Trace Fossil Distributions Map Benthic Oxygen Oases **[#3497]**
We examine burrowing behavior in Ediacaran sediments and present a model for the benthic redox landscape of shallow marine environments in the Ediacaran.

10:30 a.m. Ostrander C. M. * Kendall B. Gordon G. W. Romaniello S. J. Anbar A. D.
The "Whiff" of Oxygen 2.5 Billion Years Ago: Global or Local? **[#3709]**
High-resolution molybdenum concentration and isotopic analysis of the 2.5 billion year old Mt. McRae Shale reveals evidence for a global "whiff" of oxygen.

10:45 a.m. Cui H. * Kitajima K. Farquhar J. Śliwiński M. G. Spicuzza M. J. Fournelle J. H. Ishida A. Brown P. E. Valley J. W.
A Younger Great Oxidation Event in the Huronian Supergroup of North America **[#3452]**
In this study, we propose that the GOE in the Paleoproterozoic Huronian Supergroup is younger (higher in stratigraphy) than previously thought.

11:00 a.m. Izon G. * Ono S. Beukes N. Summons R. E.
New Quadruple Sulphur Isotope Records from the Duitschland/Rooihoogte Formation(s): (Re)defining the Structure of the Great Oxidation Event **[#3181]**
New quadruple sulphur isotope records from the Duitschland/Rooihoogte Formation(s) will be presented to (re)define the structure of the Great Oxidation Event.

11:15 a.m. Caron A. M. * Fournier G. P.
Phylogenetic Proxies for the Rise of Atmospheric Oxygen **[#3431]**
The rise of oxygen on Earth is not fully resolved; we look at the history of oxygen-related gene loss and transfer events to add support to oxygen hypotheses.

11:30 a.m. Kacar B. * Guy L. Smith E. Baross J.
Paleophenotype Reconstruction of Carbon Fixation Proteins as a Window into Historic Biological States **[#3250]**
Here we present ancient Rubisco and Carbonic anhydrase proteins and ask how paleophenotype reconstruction help address questions related to biology in deep time.

11:45 a.m. Anderson R. E. * Reddington E. R. Reveillaud J. Eren A. M. Seewald J. McDermott J. Stepanauskas R. Huber J. A.
Genomic Variation and Evolution of Natural Microbial Populations Inhabiting Deep-Sea Hydrothermal Vent Habitats **[#3119]**
We investigate evolutionary dynamics in hydrothermal vents, which are thought to have been inhabited throughout most of Earth's dynamic history.

12:00 p.m. Reinhard C. T. * Olson S. L. Schwieterman E. W. Lyons T. W.
False Negatives for Remote Life Detection on Ocean-Bearing Planets: Lessons from the Early Earth **[#3451]**
We summarize the potential for remote detectability of oxygen- and methane-based biosignatures throughout Earth's history.

12:15 p.m. *Lunch*