

September 2019



LOS ANGELES BASIN GEOLOGICAL SOCIETY MEETING ANNOUNCEMENT

September 26th (Thursday) – 11:30 AM

Dr. Sean Loyd

Associate Professor, Department of Geological Sciences, CSUF

Carbonate Concretion Formation Through Time

Abstract

Carbonate concretions have long been considered relatively ubiquitous features preserved within exposed sedimentary rocks. The formation mechanisms of concretions primarily involve the microbial degradation of organic matter in shallow sediments. The common occurrence of organic matter, degradation reactants, and microorganisms in most near surface environments agree well with the ubiquitous nature of concretions. Organic matter degradation proceeds via three dominant microbial processes: 1) respiration (organic matter oxidation); 2) methane production; and 3) methane oxidation, all of which are controlled by the ambient redox environment and can be distinguished using concretion carbon isotope compositions. It has been established that the redox chemistry of Earth's surface has changed through time, ultimately leading to relatively oxidizing modern conditions. This suggests the temporal occurrence of concretions may also vary, perhaps in association with major redox transitions (e.g., the ~2.5 Ga Great Oxidation Event or GOE). Concretion formation mechanisms may have also changed, with more reducing pathways dominating more ancient environments and more oxidizing pathways dominating more recent environments. I have compiled new and literature-based concretion occurrence (> 350 sites) and carbon isotope data (> 5,000 data points) to explore potential temporal variability. These data provide insight into carbonate concretion formation during particularly interesting intervals in Earth history including the GOE, Proterozoic "boring billion", Ediacaran to early Cambrian, and Permian to early Jurassic.

Speaker's Biography

Dr. Sean Loyd is an associate professor of geology at Cal State Fullerton. Dr. Loyd and his students study carbonate mineral formation pathways using various geochemical techniques, with particular emphasis on exploring microbial impacts on mineral precipitation.

***Please join the LABGS to see
Dr. Loyd's presentation!***

LABGS Needs HELP

LABGS is losing Wanjiru, our secretary.

AAPG rules do not permit her to be an officer of PSAAPG and an affiliate organization. We could sure use someone stepping up to the plate to fill the secretary position. Please consider becoming involved with your local organization.

Meeting Time, Place, Cost, and Reservations

When:

Thursday, September 26, 2019

Meeting Agenda

Lunch Served: 11:30 AM to 11:45PM
Announcements: 11:45 AM to 12:00 PM
Guest Speaker: 12:00 PM to 12:45 PM
Questions/Close: 12:45 PM to 1:00 PM

Place:

The Grand at Willow Street Conference Center located at 4101 East Willow Street, Long Beach, CA (562-426-0555). Take Lakewood Boulevard south from the San Diego Freeway (I-405), turn west onto Willow Street, and turn right onto Grand Avenue at the sign for the Center. Park for free in the multi-level garage structure.

Cost:

Lunch and Speaker: \$30.00 with reservations
\$40.00 without reservations

Retired: \$25.00

Student: \$10.00

PAYMENTS IN CASH OR CHECK ONLY

Meeting Reservations:

We encourage you to make your reservations using the LABGS web site, at www.labgs.org

Or, call Wanjiru Njuguna at (818) 739-9154 or email her at wanjiru.njuguna@gmail.com.

**Reservations must be made by:
10:00 AM Tuesday September 24th**

to receive reservations discount price indicated above

(this will be strictly adhered to)

But, as always, walk-ins are welcome!

**OUR WEB SITE ADDRESS:
www.labgs.org**

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ANNOUNCEMENTS:

The LABGS has expanded our meeting raffles. We would appreciate raffle prize donations! *Please bring donation items to the next meeting.*

Do you know if your PSAAPG/LABGS membership is current?

If you don't know, and want to, check via the PSAAPG website:

<http://www.psaapg.info/cloud/miscellaneous/dues.php>

Please inform a LABGS Board member if you have a pertinent announcement.