

**Sean J. Loyd Ph.D.**

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**Professional Preparation**

University of California	Santa Barbara	Geology	B.Sc. 2005
Univ. of South. California	Los Angeles	Geol. Sciences	Ph.D. 2010
University of California	Los Angeles	Earth, Plan. Sci.	Postdoc 2010-2013

**Appointments**

Assistant Professor, Geol. Sciences, California State University, Fullerton (2013-present)  
Instructor, International Geobiology Course (2014-2016)  
Agouron Institute Postdoc, Univ. of Calif., Los Angeles (July 2011-Aug 2013)  
Postdoctoral Researcher, Univ. of California, Los Angeles (Sept 2010-June 2011)  
Research Assistant, University of Southern California (2009-2010)  
Incoming Teaching Assistant Mentor, University of Southern California (2009)  
Teaching Assistant, University of Southern California (2005-2009)

**Awards and Honors**

Outstanding Untenured Faculty Member, CSUF-NSM 2019  
Excellence in Teaching-Teaching Assistant USC 2009

**CSUF Classes Taught**

Intro. Geology (Geol 101), Sp 2014, Fa 2015, Sp 2016, Fa 2017, Sp 2018, Fa 2018  
Environ. Geology (Geol 470), Fa 2013, Fa 2014, Fa 2015, Fa 2016, Fa 2017, Fa 2018  
Geochemistry (Geol 406), Sp 2015, Sp 2016, Sp 2017  
Environmental Isotope Geochemistry (Geol 506T), Fa 2014, Fa 2016, Sp 2018

**Publications** (\* indicates advised student author)

\*Caesar, K.H., Kyle, J.R., Lyons, T.W., Tripathi, A.E., and **Loyd, S.J.**, 2019, Carbonate formation in salt dome cap rocks by microbial anaerobic oxidation of methane: Nature Communications 10, doi.org/10.1038/s41467-019-08687-z.  
Stamps, B.W., Nunn, H.A., Petryshyn, V., **Loyd, S.J.**, Oremland, R.S., Miller, L.G., Rosen, M.R., Johnson, H.A., Stevenson, B.S., Berelson, W.M., GeoBiology 2016,  
Corsetti, F.A., Spear, J.R., 2018, The Metabolic Capability and Phylogenetic Diversity of Mono Lake During a Bloom of *Picocystis* strain ML: Applied and Environmental Microbiology 84, doi.org/10.1128/AEM.01171-18.  
Kraus, E.A., Beeler, S.R., Mors, R.A., Floyd, J.G., Geobiology 2016, Piazza, O., Frantz, C.M., **Loyd, S.J.**, Berelson, W., Stevenson, B.S., Marenco, P.J., Spear, J.R., Corsetti, F.A., 2018, Assessing the biological contribution to mineralized cap

- formation in the Little Hot Creek hot spring system: *Frontiers in Microbiology* 9, 13 p.
- Bonuso, N., **Loyd, S.J.**, and Lorentz, N.J., 2018, Pioneer reef communities within a Middle Triassic (Anisian) to Late Triassic (Carnian) carbonate ramp system from the Star Peak Group, South Canyon, central NV. *Paleontology, Paleoecology, Paleoclimateology* 503, 1-12.
- Bradley, J.A., Daille, L.K., Trivedi, C.B., Bojanowski, C.L., Stamps, B.W., Bradley, S.S., Nunn, H.S., Johnson, H.A., **Loyd, S.J.**, Berelson, W.M., Corsetti, F.A., Spear, J.R., 2017, Carbonate-rich cones: Insights into a modern analog for insipient microbialite formation, Little Hot Creek, Long Valley Caldera, California: *Nature Biofilms and Microbiomes* 32, 11 p.
- Hardisty, D.S., Lu, Z., Bekker, A., Diamond, C.W., Gill, B.C., Jiang, G., Kah, L., Knoll, A.H., **Loyd, S.J.**, Osburn, M.R., Planavsky, N.J., Wang, C., Zhou, X., Lyons, T.W., 2017, Perspectives on Proterozoic surface ocean redox from iodine contents in ancient and recent carbonate: *Earth and Planetary Science Letters* 463, 159–170.
- Loyd, S.J.**, 2017, Preservation of overmature, ancient, sedimentary organic matter in carbonate concretions during outcrop weathering: *Geobiology* 15, 146–157.
- Loyd, S.J.**, Sample, J., Tripathi, R.E., Defliese, W.F., Brooks, K., Hovland, M., Torres, M., Marlow, J., Hancock, L.G., Martin, R., Lyons, T., and Tripathi, A.E., 2016, Methane cold seep carbonates yield clumped isotope signature out of equilibrium with formation temperatures: *Nature Communications* 7, doi:10.1038/ncomms12274
- Loyd, S.J.**, and Berelson, W.M., 2016, The modern record of “concretionary” carbonate: Reassessing a discrepancy between modern sediments and the geologic record: *Chemical Geology* 420, 77–87.
- Loyd, S.J.**, Corsetti, F.A., Eagle, R.A., Hagadorn, J.W., Shen, Y., Zhang, X., Bonifacie, M., Tripathi, A.K., 2015, Evolution of Neoproterozoic Wonoka-Shuram Anomaly-aged carbonates: Evidence from clumped isotope paleothermometry: *Precambrian Research* 264, 179–191.
- Eagle, R.A., Enriquez, M., Grellet-Tinner, G., Perez-Huerta, A., Hu, D., Tutken, T., Montanari, S., **Loyd, S.J.**, Ramirez, P., Tripathi, A.K., Kohn, M., Cerling, T., Chiappe, L., Eiler, J., 2015, Isotopic ( $^{13}\text{C}$ - $^{18}\text{O}$ ) ordering in eggshells reflects body temperatures and suggests differing thermophysiology in two Cretaceous dinosaurs: *Nature Communications* 6, 1-11.
- Corsetti, F.A., Ritterbush, K.A., Bottjer, D.J., Greene, S.E., Ibarra, Y., Yager, J.A., West, J., Berelson, W.M., Rosas, S., Becker, T.W., Levine, N.M., **Loyd, S.J.**, Martindale, R.C., Petryshyn, V.A., Carroll, N.R., Petsios, E., Piazza, O., Pietsch, C., Stellmann, J.L., Thompson, J.R., Washington, K.A., and Wilmeth, D.T., 2015, Investigating the paleoecological consequences of supercontinent breakup: Sponges clean up in the Early Jurassic: *The Sedimentary Record* 13, 4–10.
- Loyd, S.J.**, Dickson, J.A.D., Boles, J.R., Tripathi, A.K., 2014, Clumped isotope constraints on cement paragenesis in septarian concretions: *Journal of Sedimentary Research* 84, 1170–1184.
- Peng, Y., Bao, H., Pratt, L.M., Kaufman, A.J., Jiang, G., Boyd, D., Wang, Q., Zhou, C., Yuan, X., Xiao, S., **Loyd, S.**, 2014, Widespread contamination of carbonate-

associated sulfate by present-day secondary atmospheric sulfate: Evidence from triple oxygen isotopes: *Geology* 42, 815–818.

- Loyd, S.J.**, Dickson, J.A.D., Scholle, P.A., Tripathi, A.K., 2013, Extensive, uplift-related and non-fault-controlled spar precipitation in the Permian Capitan Formation: *Sedimentary Geology* 98, 17–27.
- Loyd, S.J.**, Marengo, P.J., Hagadorn, J.W., Lyons, T.W., Kaufman, A.J., Sour-Tovar, F., and Corsetti, F.A., 2013, Local  $\delta^{34}\text{S}$  variability in ~580 Ma carbonates of northwestern Mexico: Implications for the Neoproterozoic marine sulfate reservoir: *Precambrian Research* 224, 551–569.
- Loyd, S.J.**, Corsetti, F.A., and Tripathi, A.K., 2012, Determining the diagenetic conditions of concretion formation: Assessing temperatures and pore waters using clumped isotopes: *Journal of Sedimentary Research* 82, 1006–1016.
- Loyd, S.J.**, Marengo, P.J., Hagadorn, J.W., Lyons, T.W., Kaufman, A.J., Sour-Tovar, F., and Corsetti, F.A., 2012, Sustained low marine sulfate concentrations from the Neoproterozoic to the Cambrian: Insights from carbonates of northwestern Mexico and eastern California: *Earth and Planetary Science Letters* 339-340, 79–94.
- Loyd, S.J.**, Berelson, W.M., Lyons, T.W., Hammond, D.E., and Corsetti, F.A., 2012, Constraining pathways of microbial mediation for carbonate concretions of the Miocene Monterey Formation using carbonate-associated sulfate: *Geochimica et Cosmochimica et Acta* 78, 77–98.
- Loyd, S.J.**, and Corsetti, F.A., 2010, The origin of the mm-scale lamination in the Neoproterozoic lower Beck Spring Dolomite: Implications for widespread, fine-scale, layer-parallel diagenesis in Precambrian carbonates. *Journal of Sedimentary Research* 80, 678–687.
- Loyd, S.J.**, Becker, T.W., Conrad, C.P., Lithgow-Bertelloni, C., and Corsetti, F.A., 2007, Time variability in Cenozoic reconstructions of mantle heat flow: Plate tectonic cycles and implications for Earth's thermal evolution. *Proceedings of the National Academy of Sciences* 104, 14266–14271.

### **Invited Talks**

- Loyd, S.J.**, 2017, Salt dome cap rock calcite formation by the anaerobic oxidation of methane: Southern California Geological Society Meeting, Orange CA, Oct 2.
- Loyd, S.J.**, 2017, A novel mineral-sourced sulfate AOM diagenetic system: Rock-Hosted Life Workshop, Caltech, Feb 6.
- Loyd, S.J.**, 2016, Concretions and modern marine diagenetic carbonates: analogous or anomalous?: University of Southern California paleo seminar, Oct 7.
- Loyd, S.J.**, 2015, Assessing the “modern” record of concretionary carbonate: Caltech geoclub seminar, May 21.
- Loyd, S.J.**, 2015, Assessing the “modern” record of concretionary carbonate: UCR external speaker seminar, May 19.

### **Advised Students**

Current: Bayne Westrick-Snapp (graduate, Geology MSc), Mauricio Avila (graduate, Geology MSc), John Hill (graduate, Geology MSc), Antonio Sandoval (graduate,

Geology MSc), Yasmeen de la Cruz (undergraduate, BSc Geology), Andres Bustos (undergraduate, BSc Geology)

Past: Kylie Caesar (graduate, Geology MSc), Marissa Smirnoff (graduate, Geology MSc), Connor Frederickson (undergraduate, BSc Geology), Kaelin Andelin (undergraduate, BSc Geology), Bayne Westrick-Snapp (undergraduate, BSc Geology), Lucas Lu (undergraduate, BSc Geology), Shawn Colby (undergraduate, BSc Geology), Allison Beida (undergraduate, BSc Geology), Julie Unson (undergraduate, BSc Geology)