



San Joaquin Geological Society

Date: Tuesday, May 9th, 2023

Time: 6:00 PM Social Hour
7:00 PM Dinner
8:00 PM Lecture

Place: American Legion Hall
2020 H Street, Bakersfield, CA 93302

PSAAPG Members
\$30 with reservation
\$35 without reservation

Non PSAAPG Members
\$35 with reservation

Full-time Students with ID
\$15

*** RSVP ***

**By: noon Monday,
May 8th, 2023**

Register online:

[http://www.SanJoaquinGeological
Society.org/](http://www.SanJoaquinGeologicalSociety.org/)

Pay online or at the door

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Exploring challenges and opportunities in recognizing the signature of sea level, tectonic subsidence, and sediment supply in the stratigraphic record

Presented by: Mara Brady

Abstract: Sedimentary and fossil records hold critical information about Earth's history and those archives vary across time and space. This talk will highlight examples of integrating sedimentary and fossil records, field- and model-based data, to better understand how to identify and account for variation in stratigraphic completeness in order to tease apart driving forces of changes in the rock record. Focusing on marine carbonate strata, this talk will investigate how distinct sedimentary basins respond to the same eustatic sea level history, specifically in terms of the preserved record of lithofacies and depositional cycles in sequence stratigraphic context. I will present research that compares two coeval Devonian sedimentary records characterized by different subsidence regimes (North American 'stable' continental interior vs. 'passive' continental margin) and rock accumulation rates (measured over m.y. time scales). Despite the greater potential for subaerial exposure due to minimal accommodation space in the continental interior, stratigraphic and petrographic analyses revealed the apparently significant role of suppressed subtidal sedimentation rates, along with submarine erosion and non-deposition, in limiting both the thickness and number of facies and cycles preserved in the cratonic record compared to the continental margin.

Biography: Mara Brady is an Associate Professor and Chair in the Department of Earth & Environmental Sciences at California State University, Fresno. She received her B.A. in Geology from Macalester College and her Ph.D. in Sedimentology & Paleobiology at the University of Chicago. She was an Instructor at School of the Art Institute of Chicago briefly before joining Fresno State as an Assistant Professor in 2012. As a sedimentary geologist, her research integrates sedimentological and paleontological data to develop a better understanding of the controls on the preservation of geologic and fossil records. She currently serves as the President of the Pacific Section - Society for Sedimentary Geology. Beyond her scientific research, her scholarly pursuits include academic initiatives such as preparing future science teachers, improving retention rates of science and math students through the development of a freshman learning community, and increasing the number and diversity of undergraduate geoscience majors.

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