



San Joaquin Geological Society

VIRTUAL MEETING

Date: Tuesday, January 12th, 2021

Time: 6:30 PM Virtual Lecture

Place: Zoom link to follow

Our virtual lecture will be held via Zoom. Meeting link and access code to follow!

SJGS WEBSITE

<http://www.SanJoaquinGeologicalSociety.org/>

SJGS OFFICERS

PRESIDENT

Maia Davis

California Resources Corp.
Maia.Davis@crc.com

VICE PRESIDENT

Zachary Webb

Chevron Corporation
Zwebb61@outlook.com

SECRETARY

Jennifer Prosser

EnviroTech Consultants, Inc.
jprosser@envirotechteam.com

TREASURER

Chris LaLonde

Core Lab
Christopher.Lalonde@corelab.com

PRESIDENT-ELECT

Kevin Weberling

California Resources Corp.
Kevin.Weberling@crc.com

PAST-PRESIDENT

Jeff Kimber

DOGGR

Jeff.Kimber@conservation.ca.gov

Rivers of Sand: Sea Level Control on Sediment Dispersal and Provenance since the Last Glacial Maximum, Southern California, USA

Presented by: Glenn R. Sharman

Abstract: Coastal erosion, including sea cliff retreat, represents both an important component of some sediment budgets and a significant threat to coastal communities in the face of rising sea level. Despite the importance of predicting future rates of coastal erosion, few pre-historic constraints exist on the relative importance of sediment supplied by coastal erosion versus rivers with respect to past sea level change. We use detrital zircon U-Pb geochronology as a provenance tracer of river and deep-sea fan deposits from the southern California Borderland (U.S.A.) to estimate relative sediment contributions from rivers and coastal erosion from late Pleistocene to present. Mixture modeling of submarine canyon and fan samples indicates that detrital zircon is dominantly (55-86%) supplied from coastal erosion during early Holocene (ca. 13 ka) sea level rise, with lesser contributions from rivers, on the basis of unique U-Pb age modes relative to local Peninsular Ranges bedrock sources. However, sediment that was deposited when sea level was stable at its highest and lowest points since the last glacial maximum was dominantly supplied by rivers, suggesting decreased coastal erosion during periods of sea level stability. This study suggests that relative sediment supply from coastal erosion is strongly dependent on sea level state, corroborating predictions of enhanced coastal erosion during future sea level rise

Biography: Dr. Glenn Sharman received a B.S. in Geology from Wheaton College and worked in environmental consulting prior to starting a PhD at Stanford University. Following his dissertation work, Dr. Sharman worked for ConocoPhillips in Houston in their new ventures exploration group. In 2016, Dr. Sharman joined the Bureau of Economic Geology at the University of Texas at Austin as a postdoctoral researcher. In 2017, Dr. Sharman joined the faculty at Department of Geosciences, University of Arkansas as an assistant professor. Dr. Sharman is a sedimentary geologist who studies how geologic processes (e.g., tectonism, climate, sea level) interact to influence the stratigraphic development and evolution of sedimentary systems. Dr. Sharman's research aims to take a holistic view of sedimentary basin evolution by integrating the up-stream, erosional catchment with the down-system sedimentary record. His specific areas of expertise include detrital geochronology and deep-water sedimentology, including processes related to submarine mass-movement. Dr. Sharman's research employs a combination of field-, subsurface-, and analytical-based approaches including radiogenic isotopic dating of detrital minerals."