



# San Joaquin Geological Society

Date: **Tuesday, January 11, 2011**

Cost: **PSAAPG Members & Mesozoics**

\$20 w/reservation  
\$25 without reservation

**Non PSAAPG Members**

\$25 w/reservation  
\$30 without reservation

**Full-time Students with ID:**  
Free, Courtesy of Chevron

Time: **6 pm Social Hour**  
**7 pm Dinner**  
**8 pm Lecture**

Place: **American Legion Hall**

## The Monterey Formation: for the next stage –

### What do we need to understand?

**Richard J. Behl**

*Department of Geological Sciences, California State University Long Beach*

#### BIO

Richard (Rick) Behl is Professor of Geological Sciences at California State University Long Beach, where he is also a founding member of IIRMES (the Institute for Integrated Research in Materials, Environment and Society) - a teaching and research consortium of geologists, archaeologists, and biologists. Rick is a past AAPG Distinguished Lecturer, former President of the Pacific Section SEPM, Pacific Section AAPG Distinguished Educator and winner of CSULB's Distinguished Faculty Teaching Award. His expertise is in sedimentary geology, particularly as it relates to the climatic, oceanographic, tectonic, and diagenetic evolution of the California margin. Behl is the Director of the newly created "Long Beach MARS (Monterey and Related Sediments) Project", an academic-industry consortium focused on the advancing understanding of the stratigraphy, diagenesis, and structural deformation of the Monterey Formation and similar deposits around the world.

#### ABSTRACT

The Miocene Monterey Formation is a remarkable biogenic (siliceous-, calcareous- and organic-rich) deposit with lithologic equivalents around the globe. It is California's primary petroleum source rock and an important reservoir in some areas. Monterey-like facies accumulated around the Pacific Rim from ~17-5 Ma in response to a complex combination of conditions, including tectonic reorganization and localized subsidence, high eustatic sea-level, intensification of coastal upwelling, and establishment of the modern "oceanic conveyor" circulation. In spite of its importance to the petroleum industry, its possible role in Miocene climate change, thousands of subsurface penetrations, and spectacular and widespread exposures, the Miocene Monterey Formation of California still holds many secrets, and the last broad thrust in research in the Monterey Formation and related siliceous sediments was in the 1970's to 1980's. With the recognition of the staggering potential of shale gas and oil resource plays, a new look at the reservoir potential of the Monterey is necessary. How much of its varied lithostratigraphy reflects global vs. local environmental conditions? How do facies in the formation vary laterally? How do the primary diatomites differ between paleoceanographic settings and with time? How is primary sedimentary composition preserved in the amazingly complex diagenetic rocks? How does porosity and permeability vary with diagenetic setting – not just silica phase and composition? How does Monterey stratigraphy reflect climatic and sea level cyclicity and does it fit in a sequence stratigraphic framework? How best can we compare the Monterey Formation with the present or recent? How does diagenesis and deformation vary with depositional environment, primary composition and structural setting? This presentation will review the current understanding of these problems, explores recent work that applies to them, and poses research directions important to the exploitation and investigation of the Monterey Formation and its equivalents.

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By Friday, January 7, 2011

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