

## **Integrated Stratigraphic Framework for the San Joaquin Basin**

Allegra Hosford Scheirer<sup>1</sup>, Donald L. Gautier<sup>1</sup>, Leslie B. Magoon<sup>1</sup>,  
Kenneth E. Peters<sup>1</sup>, and Marilyn E. Tennyson<sup>2</sup>

<sup>1</sup>U.S. Geological Survey, Menlo Park, CA

<sup>2</sup>U.S. Geological Survey, Denver, CO

[allegra@usgs.gov](mailto:allegra@usgs.gov)

Spatially extensive observations of hydrocarbon source and reservoir rocks are compiled for the first time into a comprehensive, three-dimensional, structural-stratigraphic map of the San Joaquin Basin (SJB) of California. The map extends from the Tehachapi range in the south to the Stanislaus County line in the north, and from the foothills of the Sierra Nevada in the east to the San Andreas Fault and Central Coast Ranges in the west. This map provides detailed stratigraphic, paleogeographic, geographic, and structural information on rocks ranging in age from >100 to ~1 Ma. The Mesozoic basement that crops out on the basin's eastern margin in the Sierra Nevada plunges westward to more than 50,000 ft depth approaching the basin's western edge, although this deepest section exhibits anticlinal folds that shoal to ~11,000 ft depth. A series of alternating Cretaceous-aged sand and shale layers are common in the northern half of the basin, but are virtually absent south of Coalinga. The Eocene-aged Domengine sandstone and its equivalents record a major sea-level rise throughout the SJB. The Eocene-aged Kreyenhagen formation constitutes the most geographically extensive unit in the SJB, covering most of the modern-day basin. Kreyenhagen-equivalent rocks rest directly on basement south of the White Wolf fault, indicating several thousand feet and tens of millions of years of erosion across this predominantly normal-offset feature. The map records the restriction of the marine basin in Oligocene-Miocene times; north of Coalinga, marine deposits are virtually absent by the time of Temblor deposition between ~16 to 24 Ma. All of the Eocene through Miocene rocks exhibit anticlinal folding on the basin's west side. By Pliocene times, widespread Westside folding ceased and the marine basin retreated westward.