

## Similarities and Differences in Mesozoic Strata in Mexico and the US Gulf Coast

James Lee Wilson<sup>1</sup> and Clif Jordan<sup>2</sup>

<sup>1</sup>Consultant, 1316 Patio Drive, New Braunfels, TX 78130

<sup>2</sup>CarbonateRocks.com, 6878 Cedar Lane, Bonne Terre, MO 63628

### ABSTRACT

Mexican Mesozoic strata along the Gulf of Mexico are very similar to Jurassic and Cretaceous sections in wells in Arkansas, Louisiana, and East Texas. The oldest sedimentary rocks (Eagle Mills-Huizachal alluvium) are redbeds of Triassic age, followed by Middle Jurassic basin-centered evaporites, which are unconformably overlain by transgressive Late Jurassic limestones and shales. The Oxfordian facies pattern is as yet not well known in the subsurface, but the Kimmeridgian has a wide distribution of oolitic and reefy shoal facies around former high areas. These facies change basinward to dark pelagic shales and limestones of the San Andres to Taman formations. Similarly, in the Ark-La-Tex area, Smackover and Haynesville carbonates grade downdip to argillaceous organic-rich sediments. This whole succession is overlain by a blanket of Tithonian sediments of the Pimienta Formation. This unit has been studied in detail by the authors from nearly 100 cores throughout this region; it consists of organic-rich argillaceous lime mudstones and

calcareous shales and furnishes a rich source for the giant oil fields of the Campeche Bank. The tremendously thick Cretaceous section which follows is mostly carbonate, built on Jurassic basement ridges of Early Mesozoic horsts and grabens.

In contrast to the above stratigraphic similarities, structure is much more complex in southeastern Mexico than along the northern Gulf rim. Pacific coast plate interactions caused island arcs to form along the western continental margin of Mexico and produced an eastward movement of the Caribbean plate. This was accompanied by Miocene and Laramide folding and northwest-directed faulting in the Early Mesozoic. All of this complicates and compounds diagenetic effects in both carbonates and clastics and makes the deciphering of fracture patterns very important. This may be compared to the simpler structural trends of the Ark-La-Tex area where extensional fault trends and salt domes constitute the major structural features.

