

## Early Paleogene Isolation of the Gulf of Mexico from the World's Oceans

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**Joshua H. Rosenfeld**, YAX Balam Inc, 7302 Ravenswood Rd, Granbury, TX 76049, [jrosenfeld@charter.net](mailto:jrosenfeld@charter.net) and James Pindell, Tectonic Analysis Inc, Cokes Barn, West Burton, West Sussex, RH20 1HD, United Kingdom.

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Deeply incised and backfilled paleo-canyons in early Paleogene shelf and slope strata along the western and northern Gulf of Mexico margin attest to large relative sea level fluctuations pre-dating Cenozoic continental glaciation. Using Pleistocene canyons as a crude yardstick, the scale of these paleo-canyons suggests relative sea level changes much larger than those of the Pleistocene. Therefore, we hypothesize that the Gulf of Mexico was isolated from the world ocean and water level suffered evaporative drawdown within the Late Paleocene/Early Eocene interval. The cause for this isolation was the collision of the Cuban arc with the Yucatán and Bahamas carbonate platforms, temporarily sealing off the southeastern Gulf of Mexico. As in the similar Miocene Mediterranean event, evaporation greatly exceeded rainfall and runoff. Our examination of the Gulf suggests that water level may have dropped below the level of the world ocean by several hundred meters, and possibly much more.

This hypothesis has important implications for the sedimentation and stratigraphy of the entire Gulf of Mexico. A growing body of evidence supports this hypothesis whose potential implications, both academic and commercial, merit further investigation. Integration of information from Cuba, Mexico, the United States and the Bahamas will be required to fully test the hypothesis.

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