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Mapping Allochthonous Salt Bodies of the Jurassic Louann Salt, Offshore Gulf of Mexico

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ABSTRACT

The Gulf of Mexico has been a significant target for oil and gas exploration since the 1990s, and continues today to be a leading exploration target. During the Middle Jurassic, widespread sheets of thick salt deposits known as the Louann Salt were precipitated throughout the basin. The increasing sedimentary load created complex gravity-induced tectonic structures that resulted in the Louann salt forming various salt stocks and canopies. The movement of these salt bodies has created suture zones that can be over pressured and cause major problems while drilling. Goals of the research are to create a synthetic seismic profile of the area to better understand the geologic history of the area and to determine the extent and shape of the allochthonous salt bodies. Imaging of subsurface evaporite bodies has been extremely difficult due to the steeply dipping flanks and varying velocity differences caused by the geochemical differences of the evaporites minerals.

Seismic data were obtained from WesternGeco over the Green Canyon protraction area, offshore Gulf of Mexico. Previously measured geochemical data from the cuttings of the well Puma West GC821-1 will be used in conjunction with the well log data to determine evaporite lithology at a given depth, and correlated back to the seismic data. Here, we present an acoustic model integrating the geochemical data, and preliminary mapping results of these allochthonous salt bodies found within the Louann Salt.

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