
Structural Characterization of the Deepwater Region in the South Gulf Salt Province, Mexico

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ABSTRACT

The Southern Gulf Salt Province (SGSP) is located in the southern portion of the Gulf of Mexico Basin and covers 250,000 km², over 50% of which are located in water depths greater than 500 m. Eleven regional seismic lines built from 3D and 2D seismic surveys, extending from onshore through shallow and deep waters, were constructed and correlated. Based on interpretation of features associated with deformation, evacuation, and emplacement of allochthonous and autochthonous Callovian salt, a subdivision for the SGSP is proposed. At first, four salt subprovinces were defined: (1S) salt anticlines; (2S) salt rollers; (3S) salt anticlines, salt pillows, and isolated diapirs; and (4S) canopies and diapirs.

The complex deformation history resulting from the interaction between salt tectonics, gravity, and contractional tectonics that affected the area, led to a more detailed and specific characterization of the previously established subprovinces. With this goal, additional 3D seismic data were interpreted and integrated into the regional model. Finally, each subprovince was subdivided into sectors that share a common history of structural evolution, and whose elements and processes of the petroleum system show very similar characteristics.