

Salt Tectonics Characterization in the East Canary Islands (Central Atlantic)

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ABSTRACT

Salt-rich passive margins constitute one of the most prolific settings for oil entrapment and accumulation (e.g., Brazil, Gulf of Mexico, West Africa). The link between evaporites and hydrocarbons is no accident, since they can perturb every aspect of a petroleum system, from source rock to entrapment, and mostly for the better. Along the underexplored offshore part of the Moroccan salt basin and East Canary Islands there are many play types, most of them related to the Triassic syn-rift salt. Toe-thrust anticlines at the basinwards edge of the salt basin form very large structures. Traps associated with salt tongues and diapirs define a more ‘classical’ salt-flank play. Numerous salt sheets and canopy complexes provide for a ‘Gulf of Mexico-style’ subsalt play. Despite the numerous untested play types, there have been only a few deep-water exploration wells drilled in the entire Moroccan salt basin, none of them having subsalt penetrations. This project aims to evaluate the geometries, mechanics, and kinematics of deformation associated with salt-related structures that developed in this passive margin setting. The project will focus on 3D seismic interpretation and well data integration from a dataset provided by a private oil company. Additionally, field data acquisition on the onshore portion of the basin will be carried out. Analog modeling will be the technique used to represent the structural evolution of salt structures of the margin and the construction of representative regional balanced cross-sections will allow performing a kinematic analysis as well as evaluate the potential and risks of the different hydrocarbon traps.