



Structural Evolution of the Perdido Foldbelt, Mexico

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ABSTRACT

Recent reprocessing of 3D WAZ seismic data in the subsalt Perdido foldbelt has revealed a more complex structural history than is known from the exposed portion of the foldbelt. An extremely complex salt canopy and a Miocene-aged, shallow-detached foldbelt obscures a deep fold-and-thrust belt involving the Mesozoic through lower Eocene section and salt. Based on seismic observations and structural restorations, we propose a Pal-Eocene timing for the deeper deformation coinciding with allochthonous salt extrusion. The well-known Miocene phase of deformation reactivates this deep fold-and-thrust belt as well as forming the shallow foldbelt involving upper Eocene through Miocene sediments. Both phases of deformation correspond with documented depocenters onshore (Paleocene-Eocene) and on the shelf (Miocene).

Understanding the relative timing between trap and hydrocarbon charge is critical to subsalt prospectivity in the Perdido foldbelt. The early structural phase strongly influences both the generation and migration of hydrocarbons as well as the emplacement of hydrocarbons into the growing structures. Furthermore, detailed burial and structural histories are necessary to model reservoir quality of the Wilcox sand reservoirs. Our structural evolution provides a framework for these models.