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# Variability in Structural Style and Fault Interaction in Thrust Belts: A Case Study from the Eastern Venezuela Basin

Detailed structural characterisation of reservoirs is an important component in the petroleum system of thrust belts. In this study, the kinematic evolution of an oil field in the Eastern Venezuela Basin is described through use of 3D seismic attributes, voxel manipulation, and log information.

Visualisation and interpretation of the data show three structures with axial surfaces trending NE-SW and average length of 6.8 km. Structural style and relief change rapidly from SW to NE. The first structure in the SW evolves continuously from a monocline to a symmetrical anticline. The monocline and the anticline forelimb are characterised by a triangular zone of deformation converging downward. Stratigraphic horizons are continuous along the monocline and continuous to slightly offset in the forelimb of the anticline. The next two structures to the NE are symmetrical anticlines with stratigraphic horizons offset in the forelimb and variable slip distribution with depth. They evolve continuously from two shallow well-defined anticlines to a deep single anticline. Minor faults are present in the backlimb and crest of these structures. Variability in structural style and the presence of minor faults suggest some degree of structural inversion and reservoir compartmentalisation. Growth sequences are observed in these structures validating a transport direction to SE.

All the observations presented above propose individual but kinematic interacting faults in 3D. Orientation and slip distribution of individual faults growing through time and space influence others faults. This interaction can be recognised from strata geometry.