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## **Three-dimensional geometry and evolution of shale diapirs in the Eastern Venezuelan Basin**

The frontal structure of the Serrania del Interior fold Belt of Eastern Venezuelan (EVB) is characterized by 200 km long and 15 km wide N20E oriented zoned mud diapirs. The structural continuation of this belt is inferred to pass under Trinidad and along the Barbados Accretional complex. The westward termination is a facies change from shales into more sandy units. The Neogene flexural foreland basin evolved diachronously with migration of the depocenter from west to east together with north to south shortening deformation as a consequence of the collision of Caribbean Plate with South America. In the west the initial foredeep stage began with the sedimentation of more than 1 km of shales in the Middle Miocene (Carapita Fm.), in the east the foredeep sedimentation ended with more than 5 km. Pliocene and Pleistocene sand units infilled the basin. Extensive 2D and 3D seismic coverage shows the entire three-dimensional geometry of the foredeep frontal structural system in the EVB area. The three dimensional geometry is complex with five types of folding identified based on morphology, growth strata, and shortening distributed in two main areas, the western trend and the eastern trend. The western trend is characterized by smooth and asymmetric growth folding indicating a major tectonic influence. The eastern trend shows symmetric folding, mud volcanoes and mud walls that can be strongly influenced by the sedimentary load. Analysis of the seismic data suggests four-stage evolution during Mio-Pleistocene shortening, from west to east, Late Miocene, Late Pliocene and Early and Late Pleistocene.