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Título / Autores / Institución

TÍTULO DE LA PONENCIA

El Anticlinal de Cibarco en el extremo norte del Cinturón Plegado de San Jacinto: posible influencia de diapirismo de lodo en la evolución de la estructura en la que se habrían perforado los primeros pozos de hidrocarburos en Colombia.

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ESTILO DE PRESENTACIÓN

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Categoría del resumen

ÁREA TEMÁTICA

Energías y recursos naturales

LINEAS TEMÁTICAS ERN

Geología del petróleo e hidrocarburos

Resumen

PALABRAS CLAVE

mobile shales, tectonic inversion, disequilibrium compaction, San Jacinto fold and thrust belt, seismic stratigraphy, Cibarco anticline.

CONTENIDO DEL RESUMEN

The Cibarco anticline, located in the northwestern South American convergent margin, is a long (~40 km) and narrow (2.5 km wide), SSW-NNE-trending structure, that separates two much wider depocenters, the Tubará-Juan de Acosta depocenter (~ 20km wide) to the W, and the Sabanalarga syncline (~11 km wide) to the E. Detailed geological surface mapping and subsurface seismic interpretation suggests that the formation and evolution of the Cibarco



anticline has been strongly influenced by mud diapirism which has been focused along a WSW-ENE-trending, inverted pre-Oligocene extensional fault. Seismic interpretation and outcrop analyses also confirmed that the source of mobile shales are the Upper Oligocene marlstones of the Lower Ciénaga de Oro Formation. We propose that the main mechanism which caused the overpressures that triggered and controlled shale mobilization was disequilibrium compaction related to sedimentary loading of impermeable seals and to the shortening and inversion of pre-Oligocene extensional faults. Growth strata indicates that the Upper Oligocene mud started moving in Early Miocene times during the deposition of the thick Porquero mudstones, and it stopped migrating in Latest Miocene times. After an uplift and erosion event, mud diapirism remained inactive in the Early Miocene and it was then reactivated in Late Pliocene times. Slight mud migration, focused on the inverted fault continued throughout the Pleistocene and to the present. Today, the slight mud migration to the surface is observed in volcanoes located in the northern strand of the Cibarco anticline, while the rest of anticline became welded. Our new interpretations, carried out more than a century after the first hydrocarbon exploration activities began in Colombia, will hopefully allow us to increase our understanding of shale tectonics, petroleum systems and plays in this portion of the convergent margin.