

Active Tectonics and Exotic Terranes: New Play Concepts in the Frontier Areas of the Western Caribbean

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Abstract

In recent years the western Caribbean has seen renewed exploration interest for the first time since the early 1980's. Since that time, modern seismic data has provided new insight into the origin and tectonic evolution of the Caribbean plate. Three subsurface tectonic terranes are identified that include 1) the offshore extension of the Precambrian-Paleozoic continental Chortis block of Honduras; 2) the subsurface location of the Late Cretaceous to Paleocene arc rocks of the Great Arc of the Caribbean known from outcrops in Nicaragua and Jamaica; and 3) the sub-surface location of the Late Cretaceous Caribbean large igneous province known from outcrops in Jamaica, the Greater Antilles, Central America, and northern South America. These unique terranes record the evolution from Late Cretaceous convergence, to Tertiary extension and strike-slip tectonics as the Caribbean plate is rafted in between North and South America from the Pacific. These terranes are buried beneath a thick (up to 5 km) Tertiary carbonate platform. Regional, high TOC source rocks have been deposited from the Venezuelan basin to Central America, and may be locally mature in areas of higher heat flow or thick sediment. This talk will discuss new play concepts in each of the tectonic terranes of the western Caribbean plate.