

CONSTRAINING SEA LEVEL CHANGE IN THE SOUTHEAST CARIBBEAN, TRINIDAD

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Abstract

Establishing a sea-level history in a region is a critical framework used for correlation and reference for a diversity of Earth system problems and particularly for the petroleum industry. A eustatic sea-level curve is one of the most ubiquitous industry tools, as the distribution and transition of sedimentary sequences are largely controlled by sea-level change. Thus, a sea-level model is commonly used to direct prediction of gas and oil-play occurrence, as a framework for unit correlation, and facies mapping. However, regions influenced by local magmatic or tectonic processes can substantially shift regional sea-level trends away from the global standard, and it is therefore, essential to establish regional estimates of past sea level for both industry purposes, as well as for variety of geoscience disciplines. In the southeast Caribbean, flights of marine terraces preserved along the north and east coastline of the island of Trinidad, present an ideal opportunity to constrain regional sea-level fluctuations. Estimates from this locale are particularly important, as the northern South American margin is one the most petroleum rich regions in the Caribbean. The goal of this study is to determine the ages of marine terraces located along Trinidad's northeastern coastlines, in order to establish a regional sea-level history in the southeast Caribbean.