

SHELF NORTHEAST OF TRINIDAD: NEOGENE STRUCTURAL DEVELOPMENT

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ABSTRACT

Seismic profiles and well logs have been interpreted for the Neogene tectonic evolution of the shelf east of Trinidad and south of Tobago. Our findings are: (1) acoustic basement includes both Tobago terrane and Northern Range basement; (2) these basements were juxtaposed, on a thrust dipping north beneath Tobago terrane before late Miocene; (3) sedimentation lapped north on Northern Range basement by late Miocene, continued after contraction, and resumed until present above an early Pliocene angular unconformity; (4) a young deformation front (DF) at least 90 km long forms the southeastern limit to these coherent, little deformed strata. The DF joins them with an acoustically incoherent terrane, which is a pile of very deformed sediments without evident basement; (5) thrusts and folds in the coherent Neogene strata are subparallel with the DF. The coherent strata are correlated with those of the northern flank of the onland Northern Basin (NB). The incoherent rocks south of the DF are probably greatly deformed NB strata together with rocks of the offshore continuation of the Central Range (CR). The CR has tectonically encroached on the Northern Range, increasingly toward the east, and squeezing out the NB. The DF thus marks the front of a north-verging imbricate stack. It is not a vertical strike slip fault or flower structure as has previously been ascribed.