

NEOGENE SUCCESSION OF SOUTHEASTERN JAMAICA:
TECTONO-STRATIGRAPHIC EVOLUTION, SEDIMENTOLOGY AND
STABLE ISOTOPE STUDIES.

A Thesis
Submitted in Fulfilment of the Requirement for the Degree of
Doctor of Philosophy in Geology

of
The University of the West Indies

by
Sherene Andrea James-Williamson
2008

Department of Geography and Geology
Faculty of Pure and Applied Sciences
Mona Campus

ABSTRACT

**Neogene Succession of Southeastern Jamaica:
Tectono-Stratigraphic Evolution, Sedimentology and Stable Isotope
Studies.****Sherene Andrea James-Williamson**

The late Miocene change from a transtensional to transpressional stress regime along the sinistral, strike-slip, northern-boundary of the Caribbean Plate north of Jamaica profoundly affected the sedimentary architecture of the White Limestone and Coastal Groups. This dissertation examines the stratigraphic architecture and geological evolution of the Neogene succession of southeastern Jamaica, with respect to sediment flux, active tectonics and high frequency changes in relative sea level due to glacial eustasy. The succession is rather complex due to tectonic deformation during the Neogene, this has resulted in the formations and relevant sedimentary packages being separated by angular unconformities, major hiatuses and or dramatic facies changes. Geological mapping has resulted in the revision of the current stratigraphy and modern analogs and stable isotope analyses have been used to reconstruct the palaeoenvironment. Facies analysis and high resolution sequence stratigraphic framework has been used to generate a model for the evolution of southeastern Jamaica using the Neogene architecture, depositional systems, active tectonics and glacial eustatic control.

Keywords: Neogene, stratigraphy, Jamaica, sedimentology, sequence stratigraphy.