

## **Insights from Sandstone Detrital Framework on the Uplift History of the NE South American Margin**

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### **Abstract**

The Cretaceous to Pliocene erosional history of Trinidad as recorded in the framework sandstone fraction depicts the increasing influence of the uplifting Caribbean Mountains and its Northern Range equivalent across the NE margin of South America. Petrographic analysis of Cretaceous to Late Pliocene sandstones demonstrates systematic mineralogical changes characterised by the gradual introduction of Caribbean Mountain metamorphic lithics into an Orinoco quartz-dominated Paleogene assemblage. Feldspathic arenites typical of Early Cretaceous sandstones give way to mature quartz-arenites by the Late Cretaceous, and these are subsequently replaced by lithic rich arenites that are prevalent throughout the Neogene rock record. The varying framework composition parallels changes in textural attributes whereby Caribbean Mountain detritus are notably finer-grained when compared to the coarser sandstones that characterize the Paleogene. The changing Cenozoic mineralogical composition record the gradual deformation of the northern South American passive margin and increasing influence on the uplifting Andes on the sedimentary record. The most significant tectonic event is arguably recorded in Late Oligocene sandstones of the Nariva Formation.