

A Geochemical Investigation of the Sierra Maestra Range, Southeast Cuba (technical abstract)

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From the late Jurassic to the late Paleogene, the northern Caribbean was the site of intense violent magmatic activity that built up the backbones of the Greater Antilles: Cuba, Jamaica, Hispaniola and Puerto Rico. The Sierra Maestra Range of Southeast Cuba is the product of this activity that started about 65 million years ago. The volcanic rocks of this area show a geochemical signature that is more mantle-like and similar to oceanic basalts, whereas the volcanics from the other Greater Antilles show a signature that is typical of continental arcs. Using Rare Earth Element analysis from the Sierra Maestra igneous suite, we hope to establish petrogenetic tracers in order to compare to other samples from published volcanic settings located in oceanic environments. These environments include the Mariana arc, forearc, trench, trough, and seamount; Walvis Ridge, Ninety-East Ridge, Yap convergent margin, Samoa Ocean Island, and the Tonga Arc, with data available from the GEOROC database. The comparison of REE vs chondrite, N-MORB, and E-MORB graphs of the various settings to the same graphs of the Sierra Maestra will allow us to determine the tectonic framework that geochemically separates Southeast Cuba from the other Greater Antilles. The results will contribute to resolving the controversy regarding the geologic evolution of the Caribbean.