

ABSTRACT

A structural analysis of the third largest Cretaceous inlier in Jamaica, the Above Rocks inlier (ARI), located in the east central interior mountain ranges of the island, is presented in this study. The inlier exposes a sequence of generally northwest dipping Late Cretaceous volcanics, volcanoclastics, sandstones and siltstones of the Mount Charles and Border Volcanic Formations. These rocks have been intruded by a multiphase Late Cretaceous – Late Paleocene granitoid pluton, the Above Rocks Granodiorite (ARG), and associated dykes. The pluton is a passively emplaced, discordant, epizonal intrusion that appears to represent the beginning of NE-SW extension in this area. The outcrop pattern within the pluton appears to be profoundly influenced by faults and fractures with average trends of 052° and 071° , which facilitated its emplacement. Cognate enclaves and foliations defined by preferentially aligned mineral fabrics have been used to analyse the flow directions in a few small sections of the pluton.

The granodiorite intrusion has resulted in localized thermal metamorphism, hydrothermal alteration and fracture controlled sulphide mineralization. Dyke intrusion patterns suggest that at the time of intrusion the major regional dilational directions were oriented NE-SW and NNE-SSW. The ARI is heavily dissected by a variety of fractures. The major fracture trends mapped are oriented NW-SE, NNW-SSE, E-W, NE-SW, N-S, and WNW-ESE. Ductile, brittle-ductile and brittle shear zones are developed throughout the inlier. The predominant fault trends mapped are (i) NW-SE and NNW-SSE right-lateral strike-slip faults and (ii) E-W left-lateral strike-slip faults. These faults appear to accommodate left-lateral movement associated with the overall motion along the Neogene, seismically active, left-lateral North-Central Caribbean Plate Boundary Zone.