

Tectonic framework of the Itatira-Madalena Region, State of Ceará Brazil: stratigraphy and interpretation of aerogammaspectrometric data

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The region under study is situated in the north-central part of the State of Ceará. The rocks consist, lithostratigraphically, of the orthoderived Archaean basement, namely the Pedra Branca and Mombaça sequences; the Middle Proterozoic metasedimentary cover of the Ceará Complex, and Brasiliano Cycle granitoids of the Tamboril-Santa Quitéria Complex. The tectonic framework is formed by structural features having the characteristics of nappe tectonics that define a megastructure known as the Itatira Front, with vergence to the SSE in which direction the metasedimentary sequences of the Ceará Complex override the orthoderived basement units.

The interpretation of the aerogammaspectrometric profiles suggests that considerable changes were imprinted on the original geological framework. Geological data (geological map, and points at which structural measurements were made) were plotted as vectors using AUTOCAD v. 14 for WINDOWS. Once the aerogammaspectrometric and geological vector data were plotted on the same co-ordinate system, the data were evaluated in an integrated form with the ERMAPPER 5.5 software. In this way the geological vector data and the aerogammaspectrometric (total count) data could be superimposed and analysed. Regions with low total count, associated with amphibolite, basic gneiss, pure quartzite defined the Pedra Branca and Mombaça basement units. High total counts, associated with U anomalies, quartz-feldspathic and differentiated rocks, were observed to delimit the occurrence of the Ceará Complex.