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The multistage tectonic evolution of the northeastern Carajás Province, Amazonian Craton, Brazil: revealing complex structural patterns

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Abstract

Structural data collected in the Carajás Province region led to a new interpretation of the southeastern Amazonian Craton geotectonic evolution. The purpose of this article is to present a new evolutionary proposal for the region. A detailed analysis of the several extensional-compressional cycles that overprinted each other from the Archean to the Neoproterozoic-Cambrian is presented. At about 2.87-2.83 Ga, collisional processes led to the formation of a stable crustal substrate that supported the installation of an extensional basin at 2.76-2.70 Ga and the deposition of the Itacaiúnas Supergroup shallow marine volcanosedimentary sequences, together with contemporary bimodal plutonism. Paleoproterozoic arc magmatism in the Bacajá Domain was followed by ~~Rhyacian~~ collision with the Carajás Province between 2.09 and 2.06 Ga, resulting in expressive tectonic thickening and low to high grade regional metamorphism, and in the deposition of the Águas Claras Formation. A second Paleoproterozoic orogenic event affected the Carajás Province ~~during the Orosirian~~, which resulted in oblique tectonism and regional counterclockwise rotation of previous associations, followed by late to post-orogenic sedimentation and 1.88 Ga anorogenic alkaline A-type magmatism. The eastern Carajás Province margin was