

ON THE TECTONIC SIGNIFICANCE OF THE ALTO MOXOTÓ TERRANE OF THE BORBOREMA PROVINCE, NE BRAZIL

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The Alto Moxotó Terrane (AMT) is an exotic Archean to Paleoproterozoic block within the Transversal Domain of the Borborema Province (NE Brazil). Its framework comprises banded orthogneisses, folded migmatites and mafic-ultramafic suites that range from the Siderian to Orosirian Periods. In addition, Orosirian supracrustal sequences including garnet-biotite schists and garnet-sillimanite-biotite paragneisses are widespread. Recent systematic geological mapping and geochemical and geochronological (U-Pb, Sm-Nd) studies revealed several accretion events that built-up the AMT. Its tectonic evolution starts with Neoproterozoic (ca. 2.6 Ga) TTG magmatism, whose source is interpreted as dry slab melting during accretion of a magmatic arc to an unknown oceanic plateau. Siderian accretion tectonic event evidenced by inherited zircon grains in magmatic rocks, is restricted to some areas of the terrane. In contrast, plentiful subduction-related Rhyacian (ca. 2.1 Ga) suites were documented, including calc-alkaline tonalite to granodiorites and sanukitoids, which are related to slab break-off and asthenosphere upwelling episodes during collision. Metamafic rocks, including retrograded eclogites, rodingites and granulites, are interpreted as the recorded peak of a major metamorphic event dated between 1.95-1.9 Ga. Finally, punctual occurrences of Statherian (ca. 1.6 Ga) bimodal suites are interpreted as representing an important within-plate event, despite recent unpublished data suggesting the presence of subduction-related rocks or accreted material dated at 1.6 Ga. However, their geodynamic significance is still poorly understood. Unlike other terranes of the Transversal Domain, Meso- to Neoproterozoic suites, including Cariris-Velhos and Brasiliano-related granites are absent within the Alto Moxotó terrane. Later Cambrian A-type granites are recognized, but restricted to small intrusions along the terrane boundaries. This complex tectonic evolution is similar to several exotic terranes and blocks worldwide, including the São Francisco Craton in Brazil, Trans-Hudson and Ungava orogens in Canada and West Africa Craton and adjacent fold belts in the African counterpart of the Borborema Province. It is recognized that ancient basement inliers or exotic terranes may represent missing puzzles of Paleoproterozoic supercontinents, such as Atlantica. Thus, the recognition and investigation of an exotic Paleoproterozoic terrane in a Neoproterozoic Borborema Province may represent an important contribution for global reconstructions.

KEY-WORDS: Archean-Paleoproterozoic evolution, accretion tectonics, Borborema Province.