

# **GGEOCHEMISTRY AND ND ISOTOPIC EVIDENCE FOR AN ARC VOLCANISM RELATED TO THE TRANSAMAZONIAN OROGENY: THE ALGODOES AMPHIBOLITES OF BORBOREMA PROVINCE, NE BRAZIL.**

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The Algodoes Metamorphic Suite comprises a meta-volcanosedimentary and metaplutonic assemblage. The supracrustal rocks are composed of quartz-feldspatic paragneisses, biotite-paragneisses, turbiditic metagraywackes, metaconglomerates, aluminous quartzites and mica-schists with decametric intercalations of amphibolite bodies. This suite occurs to the west of Senator Pompeu Shear Zone in the Borborema Province, NE Brazil. Although no pillow lavas has been found, the amphibolites massive characteristic and vesicule relicts indicate a volcanic setting rather than plutonic. Occurrence of metric bands of garnet- and garnet-free amphibolites suggest a primary compositional feature possibly derived from tuffs or volcanoclastic sediments interleaved with basaltic lava floods. The garnet-free amphibolites are tholeiitic, low TiO<sub>2</sub> (2%), basic to evolved basic igneous products (e.g., basalts to andesi-basalts) with flat REE patterns. Its primitive mantle normalized spidergrams no exhibits a common arc magmas signature (eg., a distinctive negative Nb-anomaly). However, it preserves a negative anomaly of Th and a positive anomaly of Sr. Relative to MORB pattern, these rocks are more enriched in LIL elements (e.g., Rb, Ba and Sr), and Th, Nb, Ta, and LREE. A four point Sm-Nd isochron indicate a minimum crystallization age of 2.24 Ga. TDM ages indicate an extraction age of these rocks from a mantle reservoir in the interval 2,25-2,40 Ga, too close to the isochronic age. These rocks have eNd positive values of varying between +1,65 and +2,85. The petrogenetic model proposed here suggest its origin of a shallow depleted mantle source (e.g., spinel-lherzolite) affected by a metassomatic event related to a subduction zone component.