

**GEOCHEMISTRY, Pb-EVAPORATION, U-Pb SINGLE ZIRCON AGES AND Nd ISOTOPIC CHARACTERISTICS OF ALGODOES HIGH-AL TONALITE ORTHOGNAISSES: A METAPLUTONIC ARC SUITE RELATED TO THE TRANSAMAZONIAN OROGENY, NE BRAZIL.**

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The Algodoes Metamorphic Suite comprises a meta-volcanosedimentary sequence composed mainly of paragneisses and numerous intercalations of amphibolite bodies. These supracrustal rocks were intruded by small stocks, dikes and sheets of granite and tonalite compositions. This suite crops out to the west of Sen. Pompeu Shear Zone, NE Brazil. Pb-evaporation and U-Pb single zircon dating in tonalite orthogneisses yielded ages  $2,123 \pm 20$  Ma and  $2,131 \pm 12$  Ma, respectively. The same approach for granite orthogneisses and related dikes provide ages in the timespan 2.17-2.13 Ga. Nd-model ages lay in the range 2.23-2.24 Ga. The tonalite orthogneisses comprise a gabbro-tonalite-trondhjemite association of high alumina calc-alkaline nature. Their chondrite-normalized REE patterns are similar with Ce/Yb ratios 6-10 times the chondrite values with small or no negative Eu-anomaly. Dikes and dikelets related to the orthogneisses have tonalite-trondhjemite composition, a wide variation of SiO<sub>2</sub> (~51-73%), higher contents of Al<sub>2</sub>O<sub>3</sub>, Na<sub>2</sub>O and K<sub>2</sub>O with similar fractionated REE patterns. The most important feature of geochemical signature is a conspicuous LILE/ HFSE fractionation which are associated with positive values of  $\epsilon_{Nd}$  and low ( $^{87}Sr/^{86}Sr$ )<sub>0</sub> ratios. The isotope characteristics doesn't favor the possibility of LILE/HFSE fractionation being related to interactions with materials of long crustal residence. Therefore, an inherited characteristics of parental materials. The petrogenetic model proposed here for the tonalite orthogneisses involves 10-40% degree partial melting of a garnet-amphibolite with residual garnet. The granitic orthogneisses and dikes have similar geochemical signatures and appear to have been generated mainly from juvenile materials of the magmatic arc.