

CARAJÁS MINING PROVINCE: SHEAR BELT OR PLUTONO-METAMORPHIC BELT?

1,2BARROS, C.E.M. and 2BARBEY, P.1UFPa, Belém, Brazil; 2UHP - Nancy 1, CRPG-CNRS, Vandoeuvre-lès-Nancy, France.

The Archean evolution of the Carajás region has been interpreted (Araújo et al. 1988; Costa et al. 1995; Pinheiro 1997) as related to major strike-slip and oblique shear zones (Itacaiúnas Shear Belt). Lindenmayer (1990), Barros (1991) and Machado et al. (1991) have shown that many crystalline rocks previously considered as basement gneisses are in fact Late-Archean syntectonic alkaline granites (Old Salobo, Estrela) that intrude metavolcano-sedimentary sequences. Low-P/high-T metamorphism described in these sequences (Lindenmayer 1990) is closely related to Archean alkaline granites (Winter 1994; Barros 1997). Rb-Sr ages around 2.5 Ga, obtained in supracrustal rocks, very probably indicate isotopic changes induced by the alkaline granitogenesis. The Estrela Granite Complex was emplaced and coaxially deformed in relation to a regional compression, following two stages: one controlled by magma driving pressure (inflation), the other by regional stress (deflation). This resulted in a well developed high-temperatures (~600°C) tectono-metamorphic aureole where ductile deformation has produced well-foliated amphibolites. Amphibole veins cross-cutting metabasites (hydraulic fracturing) are related to dehydration reactions during prograde metamorphism. The contradiction between the coaxial deformation of the granites and the shear zones in the metavolcano-sedimentary sequences is apparent. We suggest that these differences reflect local heterogeneities and changes in the rheological behaviour of the crustal segment studied in connection with the thermal effect induced by the A-type granites. In the Carajás Province, major strike-slip shear zones aged of 2,5 Ga are poorly constrained and they need to be confirmed through further structural and geochronological data.