

GEOCHRONOLOGICAL CONSTRAINTS FOR THE AGE OF THE EMBU COMPLEX, SÃO PAULO, BRAZIL.

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A systematic work was carried out on a large outcrop of mylonitic orthogneisses belonging to the Embu Complex, located near São Lourenço da Serra, about 50 Km SW of São Paulo. The rocks range in composition from leucocratic microcline granite to mesocratic quartz diorite, and the leucocratic rocks are organised as bands and veins, suggesting a migmatitic structure. The entire outcrop shows a gneissose planar structure, and a pervasive sub-horizontal lineation. Rb-Sr WR and mineral isochrons, K-Ar dates in biotite, U-Pb SHRIMP measurements in zircons and one Sm-Nd model age were employed in order to help unraveling the geologic evolution of the complex. The SHRIMP measurements revealed a very heterogeneous zircon population, including some inherited crystals with ages around 2000 Ma., a group of magmatic zircons with about 800 Ma., as well as some zircon overgrowth indicating a metamorphic episode at about 660 Ma. A whole rock Rb-Sr isochron yielded an age of 770 Ma., with a $^{87}\text{Sr}/^{86}\text{Sr}$ initial ratio of 0.722, indicating crustal sources for the magmatic protoliths, and the Rb-Sr and K-Ar mineral ages resulted much younger, down to about 500 Ma., probably related to the regional cooling after the deformation under the intense shearing stresses. These results point to the formation of the magmatic protoliths of these Embu orthogneisses by anatectic processes, in the Neoproterozoic, possibly associated to an early tectonic phase of the Brasiliano orogenic cycle.