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Abstract title

THE GRANITIC MAGMATISM OF THE SOUTHERN PART OF THE RIBEIRA BELT (SOUTHERN BRAZIL): PETROLOGICAL, GEOCHRONOLOGICAL (U-PB ZIRCON AGES) AND GEOTECTONIC CONTRASTS

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Abstract

During the evolution of the southern part of the Ribeira Belt in Paraná State - Southern Brazil, the Brasiliano-Pan-African Cycle was responsible for the generation of a large volume of granitic rocks of which the Cunhaporanga (CP) and Três Córregos (TC) batholiths stand out. The CP and TC are composed by different granitic units; intrude the meso to supracrustal rocks of Açungui Supergroup; and both are affected by latter granitic stocks. Studies of rock chemistry and isotopic compositions show that differences exist both between and within the batholiths. The main difference between the batholiths is found in the behavior of the alkalis. The CP is more potassic, while the TC is more sodic. The isotopic data clearly show the participation of different lower crustal sources with long crustal residence times, given by the isotopic composition of Pb in K-feldspar, by the negative values of ϵ_{Nd} (-11 to -13 for CP and -17 to -19 for TC), and by the model Nd TDM ages (1.8-2.0 Ga for CP and 2.2-2.4 Ga for TC). These sources are situated in Paleoproterozoic continental crust, and different proportions of mantle and crustal contributions are involved in the genesis of the CP and TC granites. The Ribeirão Butiá Unit of the CP and the Arrieiros and Paina Units of the TC are mainly composed of monzogranite and granodiorite with rare tonalite, which are metaluminous, medium- to high-K calc-alkaline I-type rocks formed in a continental arc related setting between 640 to 610Ma. The Pirai do Sul and Santa Rita Units of the BCP are formed by slightly peraluminous, high-K calc-alkaline, monzogranites, while the São Sebastião and Conceição Units of the TC are composed of high-K calc-alkaline, slightly metaluminous quartz monzonite and monzo- to syenogranite, respectively. These units were formed under a late to pos-collisional regime between 610 to 590Ma. The magmatic evolution finished with the emplacement of A-type affinities granitic stocks and they delimit the main period of post to anorogenic transition in the southern part of Ribeira Belt, between 580 to 550Ma.

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