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A COMBINED AMS AND ZIRCON U-PB (SHRIMP) DATA OF THE EASTERN DOMAIN OF THE TRÊS CÓRREGOS BATHOLITH: IMPLICATIONS FOR THE NEOPROTEROZOIC TECTONIC EVOLUTION OF THE APIAÍ DOMAIN (RIBEIRA BELT, SE BRAZIL)

CARLOS A. SALAZAR¹; CARLOS J. ARCHANJO²; SÉRGIO W. RODRIGUES³; MARIA HELENA B. M. HOLLANDA²; DUNYI LIU⁴

(1) Dep. Geologia, ICE, Universidade Federal do Amazonas, Brazil; (2) Instituto de Geociências, Universidade de São Paulo, Rua do Lago 562, SP, Brazil; (3) CPRM – Serviço Geológico do Brasil, SUREG SP, Brazil; (4) Chinese Academy of Geological Sciences, Beijing SHRIMP Center, China
Email: archan@usp.br

U-Pb zircon dating and Anisotropy of Magnetic Susceptibility (AMS) were used to investigate the age of the emplacement structures of the Três Córregos batholith (TCB, Ribeira belt). It is one of largest granitic intrusion of the Apiaí Domain exceeding 200 km in length before being covered by Paleozoic sediments of the Paraná basin. This study focuses on the dominant porphyritic granites of the Barra do Chapéu and Ribeirão Branco plutons, and the rapakivitic A-type plutons of Sguário and Correias. The TCB is intrusive in low grade metasediments while the Sguário pluton is intrusive in the Ribeirão Branco pluton. The Correias stock is a highly differentiated tin-bearing muscovite-topaz granite. Tin-granites, as well as the Sguário pluton, have been associated with the post-collisional stage of the Brasiliano orogeny, succeeding the medium- to high-K calc-alkaline magmatism of a mature continental arc setting represented in the Apiaí Domain mostly by porphyritic monzo- to syenogranites and granodiorites. Magnetic susceptibility of the porphyritic granites is normally high, typically above 10-2 SI, and controlled by coarse magnetite usually associated with titanite. AMS directions are well-defined within each measurement station. They show a concentric structure for the Barra do Chapéu pluton with magnetic foliations and lineations turning around a vertical axis situated close to the center of the massif. In contrast, magnetic fabrics tend to be unidirectional in the Ribeirão Branco plutons, with foliations dipping moderately to the south and lineations plunging dominantly to the southeast. Zircons from two samples of porphyritic granites provided U-Pb ages of 597 ± 4 Ma and 599 ± 8 Ma, respectively, for the Ribeirão Branco and Barra do Chapéu plutons. Magnetic susceptibility of the Sguário pluton is typically lower than the porphyritic granites. Thermomagnetic studies indicated the presence of magnetite and titanohematite. AMS directions are quite well-organized on each individual station but dispersed in the scale of the pluton. The development of such a magnetic fabric type is attributed to magmatic body forces in a post-tectonic setting. Zircons from Sguário and Correias plutons yielded U-Pb concordia ages of, respectively, 596 ± 7 Ma and 598 ± 5 Ma, which therefore are indistinguishable from the porphyritic granites. This indicates a very rapid transition from calc-alkaline magmas to a more evolved A-type ones. Furthermore, magnetic fabrics of the Barra do Chapéu and Ribeirão Branco plutons are consistent with a left-lateral transtension with the magmatic deformation concentrated in the Ribeirão Branco pluton. Assuming that the batholiths were emplaced in a continental arc setting, our results indicate the magmatism might have developed in an episode of relative tectonic quiescence probably linked to a retreating plate margin.