

ZIRCON U-PB (SHRIMP) AGES OF THE HIGH-TEMPERATURE DEFORMATION OF THE PATOS MYLONITE BELT (BORBOREMA PROVINCE, NE BRAZIL)

CARLOS J. ARCHANJO (ARCHAN@USP.BR), LUIZ GUSTAVO VIEGAS, MARIA HELENA B. M. HOLLANDA

Universidade de São Paulo – IGc, Rua do Lago 562, 05508-080 São Paulo, SP, Brazil

The Patos mylonite belt is an E-trending crustal-scale corridor that deforms the Precambrian units of the Borborema Province (NE Brazil). Most of the shear belt consists of subvertical HT mylonitic gneiss that includes migmatite lenses. The kinematic of the HT mylonites is consistently dextral. To fix the chronology of the HT events we studied zircons from meta- and diatexites involved in the E-trending dextral shear deformation. Zircons usually show cores with oscillatory zoning which frequently are truncated by new, homogeneous, recrystallized zones. These more homogeneous zircon domains are attributed to the syn-kinematic high-grade metamorphism that recrystallized partially the older zircons. Ages from zircon cores from migmatites of the Central and West Patos mylonite belt define an upper intercept at c. 2.2 Ga. In contrast, the recrystallized domains provided U-Pb ages ranging between 540 Ma and 570 Ma. Precise Neoproterozoic ages were obtained in a leucogranite associated with diatexites of the central domain and in a nebulite of the western domain. U-Pb punctual analysis from the recrystallized sectors cluster on the concordia to yield mean-ages of about 559 ± 6 Ma and 568 ± 5 Ma, which must correspond to the best age estimation for the syn-kinematic shear melting. These results indicate that the HT shear deformation occurred relatively late regarding the collisional events that sutured the West African craton with the Hoggar, Nigeria and Borborema shields at c. 600 Ma. The development of the Patos mylonite belt is here tentatively related to late collisional reactivations at the paleo-Pacific margin of the West Gondwana.

Key word: mylonite, U-Pb analysis, zircon age, migmatite, NE Brazil

