

U/Pb ZIRCON AGE AND LITOGEOCHEMISTRY OF THE RIO NEGRO COMPLEX TONALITIC GNEISS: EVIDENCE OF A 630 Ma MAGMATIC ARC AT THE COSTEIRO DOMAIN OF THE RIBEIRA BELT

Miguel Tupinambá (Tektos - Geotectonic research group of the Rio de Janeiro State University -UERJ) tupi@uerj.br; Wilson Teixeira;
Monica Heilbron; Miguel A. S. Basei

The Brasiliano/Pan-African Ribeira Belt is constituted, at its central segment, by stacked allochthonous terranes tangentially transported towards São Francisco Craton, and subsequently deformed by transpressional oblique shear zones. A *Central Tectonic Boundary* limits the the Occidental and the Oriental terranes of the belt. The latter is also known as *Costeiro Domain* or *Serra do Mar Microplate*

At the Serra dos Órgãos region and inside the Costeiro Domain, we have described a meta-igneous complex, the *Rio Negro Complex*. The most widespread rock of the complex is a *Tonalitic Gneiss*. The litogeochemistry of five samples of tonalitic gneiss of the Rio Negro Complex was compared with four samples of the Angelim Batholith, which also occurs at the Serra dos Órgãos region. The samples range from metaluminous to slightly peralkaline and perform a calc-alkaline trend on AFM diagram. The overall composition and the plot within tectonic discriminant diagrams point to a pre-collisional magmatic trend.

As detailed geological mapping has shown that a published 634 +/- 20 Ma U/Pb zircon age was obtained from a Rio Negro Complex gneiss, we attempt to obtain another age from a Rio Negro Complex tonalitic gneiss. The sample was taken from an

active quarry 2,0 km NE of Duas Barras town (Rio de Janeiro State). Four discordant zircon fractions plot on a Discordia line with an upper intercept at 634 +/- 16 Ma.

This age is too old if compared to what is proposed for the pre-collisional stage (590 - 570 Ma) of the *Rio Doce Orogeny* at the Costeiro Domain of the Ribeira Belt. However, older isochronic Rb/Sr ages from pre-collisional orthogneisses within the Ribeira Belt (from 732 to 600 Ma) have been reported. Also, the tectonic evolution of the Northern Ribeira Belt at the Espírito Santo State comprises a 650-600 Ma pre-collisional phase.

Therefore, we propose that a magmatic arc was active at the Costeiro Domain of the Ribeira Belt. The life span of the arc (640 to 590 Ma) is distinct from that of the Rio Doce Orogeny. It occupies 2/3 of the Costeiro Domain area, almost 600-km from northern São Paulo State to Southern Espírito Santo State. As no pre-collisional magmatic rocks were described at the Occidental Terrane up to now, the existence of a magmatic arc at the Oriental Terrane (Costeiro Domain) brings new constraints on the palaeogeography of the orogenic belt.

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