

TECTONIC INTERPRETATION OF $^{40}\text{Ar}/^{39}\text{Ar}$ AGES ON COUNTRY ROCKS FROM THE CENTRAL SECTOR OF THE RIO NEGRO-JURUENA PROVINCE, SW AMAZON CRATON

BETTENCOURT, J.S. - *University of São Paulo, Brazil*

ONSTOTT, T.C. - *Princeton University, USA*

DE JESUS, T. - *Princeton University, USA*

TEIXEIRA, W. - *University of São Paulo, Brazil*

Five $^{40}\text{Ar}/^{39}\text{Ar}$ mineral age determinations were carried out on an augen gneiss (RO-12) and granite gneiss (RO-13) in the State of Rondônia, southwestern part of the Amazon Craton. These samples are representatives of the crystalline basement of the Rio Negro-Juruena Province, which is characterized by medium to high grade metamorphic rocks overprinted by polyphase deformation and retrograde metamorphism, eventually intruded by rapakivi granites and associated mafic rocks as well as by late tin-bearing granite phases at the time interval 1.57 to 1.0 Ga.

Reconnaissance Rb-Sr studies on the country rocks from Rondônia yielded a Rb/Sr age of 1539 ± 36 Ma (Priem *et al.*, 1989), interpreted as the timing of the regional metamorphism. Granitoid gneisses from the area dated by the U-Pb SHRIMP method on zircons indicated that their crystallization occurred at 1.75 to 1.55 Ga, interpreted as the time of original rock formation episodes (Tassinari *et al.*, this symposium). The Younger Granites of Rondônia and associated mafic rocks in the area have yielded Rb-Sr and U-Pb ages within the interval 1.08-1.0 Ga.

Hornblendes from these gneisses define comparable $^{40}\text{Ar}/^{39}\text{Ar}$ plateau ages of 1156 ± 36 Ma (RO-12) and 1149 ± 35 Ma (RO-13). The spectra on either samples don't show evidence of either excess ^{40}Ar or atmospheric contamination, therefore suggesting that the hornblende ages

reflect a Mesoproterozoic metamorphism. The progressively slightly younger ages obtained on the biotites, 1001.5 ± 33 Ma (RO-12) and 912.8 ± 30.5 Ma (RO-13), and one feldspar (antiperthite, RO-12), record slow cooling rates during the proposed metamorphism and are consistent with K/Ar ages observed in the Younger Granites of Rondônia (1.08 - 1.0 Ga).

The $^{40}\text{Ar}/^{39}\text{Ar}$ ages define the approximate period of regional cooling of a 1150-950 Ma tectonomagmatic event that is also recorded in the adjacent Rondonian and Sunsás provinces and in the Garzon Sta. Marta and Medellín inliers of the Andean Belt in Colombia (Kroonenberg, 1982).

Preliminary paleomagnetic data based on three or four reliable and consistent poles compare well with poles from the Grenville province, North America. Together with the radioisotopic pattern presented above it is suggested that the Rondonian metamorphism affected the central sector of the Rio Negro-Juruena province. During this episode the area was positioned near the Grenville province (end of the Mesoproterozoic), which reinforces Dalziel's model (1992 a,b) of a lateral geometrical fit between Grenvillia and Amazonia during Proterozoic times, and also Sadowski and Bettencourt (in press) and Tosdal *et al.* (1994) evidences for such model.

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