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CORRELATION OF RAPAĀKIVI GRANITES AND
RELATED ROCKS ON A GLOBAL SCALE

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**SYMPOSIUM ON RAPAĀKIVI
GRANITES AND RELATED ROCKS**

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ABSTRACTS VOLUME

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GEOCHRONOLOGICAL SYSTEMATICS ON BASEMENT ROCKS FROM THE RIO NEGRO-JURUENA PROVINCE, BRAZIL, AND TECTONIC IMPLICATIONS

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The Rio Negro-Juruena Province (RNJP) occupies large portion of the western part of the Amazonian Craton (Teixeira *et al.* 1989), and is a zone of complex granitization and migmatization. It is composed mainly of gneisses, migmatites, amphibolites, granodiorites and tonalites as well as syn- and post-tectonic anatectic granites. Regional metamorphism generally took place in the RNJP in the upper amphibolite facies. The granites and gneisses of the RNJP yield Rb-Sr and Pb-Pb whole rock isochron dates in the range 1.75 Ga to 1.55 Ga., with initial $^{87}\text{Sr}/^{86}\text{Sr}$ ratios around 0.703 and a single-stage model m_1 value about 8.15. These results were interpreted as indicating the time of original rock-formation from mantle-derived magmas (Tassinari, 1986).

In order to improve the geochronological control, SHRIMP U-Pb zircon and conventional U-Pb zircon ages have been undertaken on six samples of granitoids and gneisses from the Papuri-Uaupés and Guaviare-Orinoco rivers areas (northern part of RNJP) and Jamari-Machado rivers area (southern part of RNJP). The granitoids from the northern part yielded conventional U-Pb zircon ages of 1709 ± 17 Ma and 1521 ± 31 Ma, and SHRIMP U-Pb concordant zircon results on two metatonalitic samples of 1800 ± 18 Ma. Samples from a foliated metadiorite and a blastomylonitic granitoid from the southern part of RNJP yielded SHRIMP U-Pb concordant ages of 1750 ± 17 Ma and 1570 ± 17 Ma. These new U-Pb results confirm the previous Rb-Sr and Pb-Pb geochronological evidence, that the main magmatic episodes within the RNJP took place

mainly between 1750 Ma and 1550 Ma.

A few Sm-Nd T_{DM} model ages of about 2.0 Ga, obtained on the RNJP basement rocks, by Sato *et al.* (in prep.) suggest that this crustal province constitute a segment of continental crust newly added to the Amazonian craton at the end of the Early Proterozoic. Up to this moment, there is no indication whatsoever of Archean derived material in the RNJP.

In the area of the RNJP there are several anorogenic rapakivi type granite plutons, mainly subalkaline, and exhibiting characteristics of A-type and within-plate granites. The associated important Sn, W, Nb and Ta mineralizations show a close spatial relationship to the latest granitic phases. These late to post-tectonic and anorogenic granites were emplaced in three different time periods as follows: 1.6 - 1.5 Ga; 1.4 - 1.2 Ga and 1.1-1.0 Ga. Due to the absence of recognized Archean material within the basement rocks, it is possible to consider the Early to Middle Proterozoic continental crust as the main magmatic source for the Rapakivi granite intrusions.

The K-Ar and Ar-Ar mineral dates for the RNJP basement rocks fall into two main groupings at ca. 1.4 - 1.3 Ga and at ca. 1.2 - 1.0 Ga (Bettencourt *et al.*, 1995). The older group was interpreted as referring to uplift, cooling and tectonic stabilization of the RNJP, whilst the younger group, characterizing mainly the late to post-orogenic and anorogenic granitoids, may relate to reheating and tectonic reactivation associated with events in the adjacent Rondonian Province.

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