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Abstract title

TECTONIC EVENTS PRECEDING THE BRASILIANO CYCLE IN THE BORBOREMA PROVINCE, NE BRAZIL: IMPLICATIONS FOR RODINIA RECONSTRUCTIONS

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Abstract

Recent data obtained in the Borborema Province, NE Brazil, a Late Neoproterozoic belt situated in the north edge of the São Francisco craton, have demonstrated the importance of several tectonic events preceding the terminal Brasiliano orogeny of this Province. In its central part, the oldest registers include disrupted anorogenic intrusives, varying from gabbro-anorthosites, A-type granites, trondhjemites, carbonatites (?) to mafic dike swarms intruding disperse remaining Paleoproterozoic terranes. The available geochronologic U-Pb data reflect ages that are more younger than 1.9 Ga (well documented ages vary from 1.7 Ga to 1.5 Ga). The next tectonic event is documented by volcano-sedimentary belts of Stenian-Tonian age, that form the Alto Pajeú terrane. These supracrustals show characteristics of mature arc and rifted back-arc sequences, which were affected subsequently by an expressive tectono-thermal event of amphibolite facies, the Cariris Velhos event. Sheets of peraluminous granites are conspicuous in this terrane, representing a vigorous event of syn-contractional anatexis. The anti-clockwise metamorphic path confirms the collisional nature of the event, well calibrated by several U-Pb determinations whose age determinations spread in a time interval between 950 and 920 Ma. It follows a period of extensional regime of brittle to ductile-brittle nature that gave place to mafic dike and granitic intrusions, with ages varying from 800 to 750 Ma. Finally the latest event, the Brasiliano orogeny, re-deforms the Cariris Velhos structures along significant transcurrent shear zones, that are also intruded by numerous granite intrusives, blurring the foregoing architecture. The pre-Brasiliano evolution shows a parallelism with other Grenville-age belts in the world, suggesting that part of the Borborema province would may to make part of the history of assemby and break-up of the Rodinia supercontinent.

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