

New Data on the Relative-Age and Petrochemistry of the Magmatic Cuó Event (Potiguar Basin; Northeast Brazil)

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Volcanic rocks of Cuó Suite in onshore Potiguar Basin are known as an unique occurrence exposed near eastern to Açú town. The rocks include olivine-basalts with alkaline affinity, being probably related to a local intraplate readjustment in response to a distal strong tectonism, by which Benue Trough (in West African) was widely deformed at the same time. Similarly to the Tertiary Macau Suite, they have an enriched mantle-normalized trace-elements pattern, suggesting a common deep mantle source. Geochemical modelling suggests that volcanic rocks are formed at P-T ranging from 1300 to 1350°C, whereas the pressures varied from 11 to 13kbar. Both P-T conditions are inserted into 0,5-2% environment of partial melting, which is also confirmed by the onset of fractional crystallization at greater depths (lower-crustal ?), including fractionation of Fe-Ti. New data from water wells provide evidence that Cuó igneous bodies have a sill-like shape intruded into the siliciclastic sediments of the Açú Formation, which is confirmed by the clear exposure of thermally affected sandstones and by the pushing up of large blocks of massive sandstones near Cuó Ranch. The resulting positive topographic area probably precluded locally carbonate platform deposition. In the study area there is no evidence of spatial interplay between these magmatic rocks and Jandaíra Formation, which is Santonian-Coniacian in age. Geochronological informations (whole-rock K-Ar dating), however, show that the Cuó Suite was emplaced, at least, between 90-85 Ma. These stratigraphic interactions play important role in constraining the relative-age and inferring that the Cuó Suite is a post-Cenomanian and pre-Coniacian magmatic event, probably Turonian in age.