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U-PB DETRITAL ZIRCON PROVENANCE OF METASEDIMENTARY ROCKS FROM THE CEARÁ CENTRAL AND MÉDIO COREAÚ DOMAINS, BORBOREMA PROVINCE, NE-BRAZIL: EVIDENCE FOR A LONG-LIVED NEOPROTEROZOIC ACTIVE CONTINENTAL MARGIN

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We have dated 854 detrital zircon grains by LA-MC-ICP-MS from 14 samples from the Ceará Central (CCD) and Médio Coreáú (MCD) tectonic domains, which are separated by the Transbrasiliano-Kandi Lineament (TKL), perhaps the largest coherent shear zone of the world. To the west of the TKL, the basement of the MCD domain has a tectonic affinity with the West African and São Luis Cratons, where Paleoproterozoic rocks predominate. Within its area, three samples of the São Joaquim quartzite yielded Paleoproterozoic and Archean ages only, with the youngest $^{206}\text{Pb}/^{207}\text{Pb}$ concordant ages at ca. 1730 Ma. However, for one schist of the Goiabeira Formation, the younger $^{207}\text{Pb}/^{235}\text{U}$ concordant ages cluster around 720 Ma, with provenance dominated by zircons within the 750-1100 Ma interval. To the east of the TKL, the Borborema Province correlates well with the Trans-Saharan Belt of West Africa, where a Paleoproterozoic-Archean basement was affected by a strong tectonic imprint of the Neoproterozoic Brasiliano-Pan African orogeny. Two samples of a sillimanite-garnet-biotite gneiss and a kyanite-sillimanite-muscovite quartzite, located between the TKL and the Tamboril-Santa Quitéria granitic-migmatitic Complex (TSQgmC), yielded roughly similar patterns to that of the Goiabeira schist, however the younger $^{207}\text{Pb}/^{235}\text{U}$ concordant ages are at ca. 660-700 Ma. Farther east, within the CCD, east of the TSQgmC, six samples, including five quartzites and one sillimanite-garnet-biotite gneiss, indicated two distinct provenance patterns, with some samples yielding younger concordant ages at ca. 900 and 750 Ma, while others demonstrate a strong Paleoproterozoic source component with zircons older than 1500 Ma. Finally, one sample of the post-collisional molassic Jaíbaras trough, inserted within the main axis of the TKL, yielded a maximum deposition age of ca. 540 Ma, with a strong source component ranging from 540 to 640 Ma, derived mainly from the TSQgmC. Evidence of a large ocean basin prior to 800 Ma, along the vicinity of the TKL, is well established in Central Brazil and West Africa. We believe that the strong source component at around 800 Ma, and possibly also the older ones at ca. 1000 Ma, are derived from magmatic arc systems developed at the margins of the ancient continent which makes up the basement of the Borborema Province. Abrupt cessation of the detrital zircon input at ca. 650 Ma (there and elsewhere in the Borborema Province), suggests that deposition was no longer occurring, marking the onset of collisional tectonics and metamorphism in the province. This is supported by the ages spanning the 590-640 Ma interval found in the metamorphic domains of our zircons, synchronous with the development of the main tectonic and magmatic stages of the TSQgmC.