U-Pb/SHRIMP Age and Sm-Nd Nature of an Archaean Crust in Central Brazil

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The Crixás Granite-Greenstone Belt Terrane, Central Brazil, consists of three supracrustal belts, surrounded by granite-gneissic complexes. From west to east, they are named: Anta Complex, Crixás Greenstone Belt, Caiamar Complex, Guarinos Greenstone Belt, Moquém Block, Pilar de Goiás Greenstone Belt and Hidrolina Complex. U-Pb/SHRIMP dating and Sm-Nd isotopic investigation allowed the recognition of three different phases of sialic crust generation during the Archaean. The first phase (C1) has been dated between 2.9 to 3.3 Ga (U-Pb/SHRIMP on zircon inherited components and TDM model ages). The second phase (C2) occurred between 2.84 and 2.79 Ga, and represents the intrusion of granitoids of the Anta, Caiamar and Hidrolina Complexes, most of them showing eNd between +1.0 and -1.0. The Moquém Block is related to the third phase (C3), at ca. 2.71 Ga, and has TDM model ages (ca. 3.03 Ga) and eNd values (-2.2) that suggest these rocks are the product of partial melting of the initial crust (C1). The Crixás region, therefore, had its main period of crustal growth restricted to the Archaean. U-Pb and Sm-Nd data suggest that granitoid bodies of the Anta, the Caiamar and the Hidrolina Complexes intruded an initial juvenile crust (C1), and represent a second phase of sialic crust generation (C2). C3 phase seems to have been formed by partial melting of C1.