Pb-Pb zircon age from a tonalite near Alvarenga, Minas Gerais, Brazil: geotectonic implications for the evolution of the Araçuaí Mobile Belt

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Near the town Alvarenga, eastern Minas Gerais, granitoids related to the Brasiliano Orogeny range in age from Neoproterozoic to Cambro-Ordovician. A steep-dipping, regional NW-SE foliation imprinted on the Neoproterozoic metasedimentary Rio Doce Group controls the syntectonic emplacement of a gneissose tonalite that is truncated by the *circa* 594-Ma Galiléia tonalite. The granoblastic, gneissose tonalite displays quartz, plagioclase, biotite, titanite and epidote-group minerals. It is an elongated body, marked by a foliation that is parallel to the regional NW-SE orientation.

Samples of pulverized tonalite were submitted to conventional isomagnetic separation. The hand-picking separation took into account the zircon typology, and was performed with the least-magnetic fraction. Clear, transparent, hardly-fractured zircon crystals were concentrated. Highly-symmetrical crystals exhibited (100) prismatic and (101) bypyramidal habits, thus suggesting them to be P_2- and P_3-dominant. The single-zircon, Pb-evaporation analysis of six crystals was performed in varying temperature intervals on a Finnigan Mat262 mass spectrometer. Consistent $^{207}Pb/^{206}Pb$ average ratios obtained for the various crystals indicated small Pb loss. The data point to an average of 625±11 Ma (2σ), based on 358 $^{207}Pb/^{206}Pb$ measured ratios of crystals investigated. 625±11 Ma is interpreted as the crystallization age of the tonalite, consequently establishing the Brasiliano-related, NW-SE deformation age imprinted on the Rio Doce metasedimentary rocks.