

450 Ma of Neoproterozoic lithospheric evolution in the southern Araçuaí Orogen within ancient continental crust: geological, geochronological and geochemical constraints from Alvarenga, Minas Gerais, Brazil

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The Neoproterozoic Araçuaí Mobile Belt forms the eastern margin of the São Francisco Craton. Near Alvarenga, basement rocks encompass the Archaean-Paleoproterozoic Pocrane Complex. The Neoproterozoic Rio Doce Group comprises quartzites and biotite schists. Granitoids range in age from Neoproterozoic to Cambro-Ordovician. Clinopyroxene-bearing metamafic rocks and amphibolites with biotite are scattered in the Archaean Cuieté Velho Metavolcano-sedimentary Sequence, Pocrane Complex. They represent metamorphosed igneous rocks of a differentiated, intracontinental alkaline series, related to crustal extension preceding the Brasiliano Orogeny. Preliminary Sm-Nd isochron age data of a cogenetic population point to 1035 ± 160 Ma, with an $\epsilon_{\text{Nd}}(T)$ of +5.9 and MSWD of 7.8. The syn-tectonic emplacement of a gneissose tonalite was controlled by a steep-dipping, regional NW-SE foliation. Three zircons from the tonalite display Pb-Pb age of 625 ± 11 Ma. The foliation is also imprinted on the Rio Doce Group and truncated by the 594-Ma Galiléia Tonalite. These magmatic and metamorphic features overprint an Archaean-Paleoproterozoic infrastructure, as part of a major continental extensional - collisional cycle between the São Francisco and Congo Cratons. This long-lived, Neoproterozoic evolutionary cycle preserved at this mid-crustal portion of the Araçuaí Belt, was developed on ancient continental lithosphere, resembling the São Francisco Craton.