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Nd-Sr ISOTOPES AND THE PROVENANCE OF CLASTIC SEDIMENTS IN CONTINENTAL RIFTS: PRELIMINARY INSIGHTS FROM THE PALEOCENE RESENDE BASIN, SOUTHEAST BRAZIL

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In order to evaluate the usefulness of radiogenic isotopes in sedimentary provenance studies, Neodymium and Strontium isotope ratios were measured in sandstone and mudstone whole rock samples from the Paleocene Resende Formation, which was deposited in the Resende Basin, a hemigraben belonging to the Southeast Brazil continental rift system.

Three sampling sites were preliminarily selected: site one representing alluvial fan deposits derived from the upper-Cretaceous Itatiaia alkaline complex; site two representing alluvial fan deposit adjacent to the gneissic basement Itatiaia Cretaceous alkaline intrusive massif, site two is located adjacent to the Precambrian gneissic basement; and site three, the type section of the Resende Formation, is represented by a succession of alternating decimetric beds of fluvial conglomeratic sandstones and mudstones.

The samples were quartered and milled prior to acid digestion using teflon vessels in clean room. Chemical separation of Sr and Nd followed standard chromatographic procedures using ion exchange resins in teflon columns under HCl medium. The samples were loaded onto previously degassed Rhenium filaments and analysed by Thermal Ionization Mass Spectrometry (TIMS) using an array of up to 8 Faraday collectors in static mode.

The samples from the first two sites show isotopic signatures that closely match those of the respective source areas and may be regarded respectively as compositionally close to the alkaline and Precambrian compositional end members. The isotopic signature of the samples from the third site reflects mixtures between the two previous end members: an alkaline source and Precambrian basement sources. The latter is more akin to the late-to post-orogenic granites of the Ribeira belt, such as the Funil and Serra do Lagarto granites.

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Palavras-chave: sedimentary provenance; radiogenic isotopes; continental rift; isotopic mixture