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UNRAVELING THE TECTONIC EVOLUTION OF A NEOPROTEROZOIC - CAMBRIAN ACTIVE MARGIN IN THE RIBEIRA OROGEN (SE BRAZIL): U-Pb AND Lu-Hf PROVENANCE DATA.

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The Neoproterozoic-Ordovician Central Ribeira Orogen (southeastern portion), in SE Brazil, presents two contrasting tectonic domains in its southern portion: (a) The Arc Domain constituted of Neoproterozoic to Paleozoic magmatic rocks and low P-high T metamorphic para- (São Fidelis Group)- and ortho-derived units (in Oriental Terrane); and (b) The Basement Domain, constituted by a Paleoproterozoic and Neoproterozoic medium P and high T metamorphic para- (Palmital-Búzios Succession)- and ortho-derived units (in Cabo Frio Tectonic Domain). Our work focuses on paraderived rocks sequences from both domains. The provenance analysis includes U-Pb and Lu-Hf analyses in zircon grains, whose results are presented here as an effective tool to unravel the paleogeography and nature of the pre-collisional sedimentary basins. We performed 505 analyses (U-Pb) on detrital zircon grains and some metamorphic overgrowths from six samples of paragneisses. In addition, 141 Lu-Hf analyses from six samples, performed only on the detrital zircon grains domains, are also presented. All samples present a main peak from Neoproterozoic sources (750-570 Ma) and the other minor peak in the Stenian/Tonian periods (1200-850Ma), which indicates an orogenic contribution to this basin. Scarce Mesoproterozoic sources and two peaks at the Archean/Paleoproterozoic (2.6 and 1.9 Ga) are also recognized as sources from an ancient continent. The Lu-Hf data reveals a juvenile source for the detrital zircon grains from Buzios Succession while Palmital and São Fidelis Group units show a main crustal signature for their detrital zircon population. Based on the U-Pb and Lu-Hf data presented here, plus petrological data, geological correlations, and compilation of data from literature, we propose a tectonic model for the origin of para-derived rocks from the eastern part of the Ribeira Orogen. In at least two stages, starting with an extensional environment of ca. 600 Ma in a back-arc basin (Buzios succession deposition) and continuing as an active convergent margin between 570 and 550 Ma in the fore-arc and prism basin (São Fidelis Group and Palmital succession).