São Francisco–Congo craton breakup: clues from U-Pb-Hf of detrital zircon in Neoproterozoic metasediments of the Araçuaí belt (SE Brazil)

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The position of South American cratonic blocks within the Rodinia supercontinent before breakup and amalgamation to West Gondwana consitutes a debated topic [1, 2]. Furthermore, constraints for timing the breakup and rifting in descendant blocks of Rodinia in South America are scarce.

Here, we present results of a detrital zircon U–Pb and Hf isotope provenance study on metasedimentary rocks of the Araçuaí belt in southeast Brazil, which provide evidence for the breakup between the São Francisco–Congo craton in Rodinian times.

The U–Pb age spectra of detrital zircons range from 900–650 Ma and define a maximum depositional age of ca. 650 Ma. Zircon $\varepsilon_{Hf(t)}$ values from these rocks are all positive between +1 and +15, supporting previous evidence of a Neoproterozoic extensional phase and oceanic crust formation in a precursor basin to the Araçuaí belt. Recrystallization of detrital zircon at ca. 630 Ma is compatible with a regional metamorphic event associated with terrane accretion to the Paleoproterozoic basement after transition from an extensional to a convergent regime.

The juvenile nature and age spectra rcorded in detrital zircons of metasediments from the Araçuaí belt correspond with zircons from metasedimentary rocks and oceanic crust remnants of other orogenic belts in the south. This suggests that rifting and oceanic crust formation of the entire orogenic system, the so-called Mantiqueira Province, was contemporaneous, most likely related to a large mantle plume. It further indicates that the cratonic blocks involved in the orogenic evolution of the Mantiqueira Province were spatially connected during Rodinian times around 900 Ma.

[1] Li et al. (2008) *Precamb. Res.* **160**, 179–210. [2] Evans (2009) *J. Geol Soc. Lond.* **327**, 371–404