

Tracing the tectonic evolution of Ribeira Belt based on U-Pb detrital zircon ages: implications on the Southwest Gondwana assembly

C.R. PASSARELLI¹, M.M. MARQUES DOS SANTOS¹, E.M. SÁ¹, M.A.S. BASEI¹, O. SIGA JR.¹

¹ Geosciences Institute-University of São Paulo-Brazil. Rua do Lago 562 (cr.passarelli@usp.br)

In the southern Ribeira Belt [1], southeast of Brazil, the Paranaguá (PT) and Curitiba Terranes (CT) represented by gneissic-migmatitic, granitic and metasedimentary rocks, are separated by major shear zones [2, 3]. Isotopic U-Pb LA-ICP-MS detrital zircon analyses were done in metasedimentary units representative of each domain: Iguape Sequence - IS (PT) and Rio das Minas - Cachoeira Sequence - RMCS (CT).

The IS are represented by schists, metaritmities and impure quartzites with low metamorphic grade. U-Pb detrital zircon analyses revealed maximum sedimentation age of ~1223 Ma, with main distribution at ~2176 Ma. There are still four age peaks from Mesoarchaeon to Paleoproterozoic, with the main contribution around 3400 Ma (Fig. 1).

The RMCS are represented by paragneisses, ortoquartzites, and schists with a metamorphic peak at the sillimanite zone. U-Pb detrital zircon analyses revealed metamorphic Neoproterozoic peaks in ~600 Ma and 750 Ma and the maximum sedimentation age considered is ~790 Ma, which also represents the main contribution of the source areas. It also occurs a significative contribution from Paleoproterozoic and Mesoarchaeon ages (Fig. 1).

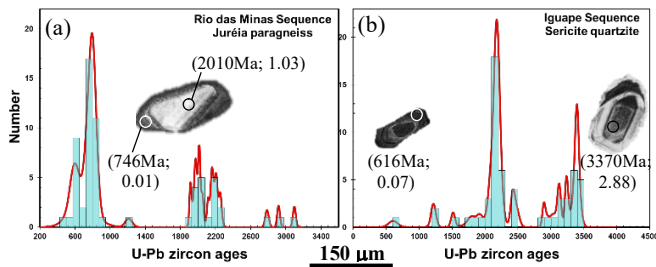


Fig. 1: Histograms for U-Pb (LA-ICP-MS) ages of detrital zircon grains (Zr) extracted from the RMCS (a) and IS (b). Cathodoluminescence images of Zr: spot locations, $^{206}\text{Pb}/^{238}\text{U}$ ages in Ma and Th/U ratios are shown.

[1] Basei *et al.* (2008) *Geol. Soc. London, Spec. Publ.* **294**, 239–256. [2] Passarelli *et al.* (2011) *Int J Earth Sci (Geol Rundsch)* **100**: 391–414. [3] Passarelli *et al.* (2019) *Lithos* **342–343**, 1–17.