

## U-Pb provenance ages and Hf isotopes of Tatuí Formation – Paraná Basin: Paranapanema Craton cover

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Permo-Carboniferous to Cretaceous lithostratigraphic units outcrop in the Pitanga Structural Dome, east of the Paraná Basin (PB), State of São Paulo (SP) - Brazil.

Studies of the provenance of detrital zircons of the Permian Gondwana I Supersequence are still scarce in the state of São Paulo and limit broader correlations and interpretations. This work presents the first U-Pb and Hf isotopic results of detrital zircons obtained by the LA-ICP-MS technique for the Tatuí Formation, SP, described as correlated to the Rio Bonito Formation that is distributed along the entire eastern border of the PB from the Rio Grande do Sul to Paraná states.

The Tatuí Formation is represented by siltstones and fine-grained sandstones and, in its upper part, fossiliferous conglomeratic sandstone with a thickness close to 50 cm called Ibicatú Layer. This upper layer, in turn, has an abrupt contact with the siltstones of the Taquaral Member of the Irati Formation.

The younger ages obtained in the zircon crystals of the fine-grained sandstones of the Tatuí Formation are between ca. 269 and 262 Ma with  $\epsilon_{\text{Hf}}$  values between -1 and -5 and  $\text{Hf-T}_{\text{DM}}$  Model Ages (1000 to 1500 Ma). Most zircon crystals aged between 289 and 261 Ma showed  $\epsilon_{\text{Hf}}$  values between -4 and +2, and more rarely values of -7 and +5. The zircon age spectrum shows three well-defined peaks at 500 Ma, 283 Ma, and 1060 Ma. Lower Mesoproterozoic, Paleoproterozoic, and Neoproterozoic rocks are subordinate contributions with extremely variable  $\epsilon_{\text{Hf}}$  values, between +8 and -10.

The youngest zircon crystals of the Ibicatú Layer, although stratigraphically above, presented slightly older ages between 276 and 271 Ma and  $\epsilon_{\text{Hf}}$  of -1 and -7 and  $\text{Hf-T}_{\text{DM}}$  Model Ages (1200 to 1600 Ma). Zircon crystals aged between 293 and 270 Ma showed  $\epsilon_{\text{Hf}}$  values predominantly between -1 and 0, but also values of -5. The zircon age spectra are likely similar to the fine-grained sandstones and show three well-defined peaks at 520 Ma, 278 Ma, and 995 Ma. Mesoproterozoic, Paleoproterozoic, Neoproterozoic, and one contribution of Paleo to Mesoproterozoic source show  $\epsilon_{\text{Hf}}$  quite variable between +7 and -12.

The ages ranging from 289 and 269 Ma may suggest a possible volcanogenic origin for these zircon crystals. These ages, along with  $\epsilon_{\text{Hf}}$  values, are compatible with those observed in the volcanic rocks of the Choiyoi Magmatic Province.

Although preliminary, these ages are incompatible with the current stratigraphic positioning of the Tatuí Formation, being compatible with the ages obtained in volcanogenic zircons of the Passa Dois Group Formations stratigraphically above.

Conversely, it is imperative to confirm this hypothesis by conducting a more detailed investigation in the Tatuí Formation.

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