

Session Poster | T10 [Topic Session] Tectonics

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 T10_poster(General Edu. Build.C, 1-2F)

[2poster34-49] T10. Tectonics

[T10-P-3] U–Pb Zircon Geochronology of the Song Ba Basin: Implications for Magmatic and Tectonic Evolution of the Kon Tum Massif, Central Vietnam

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The Kon Tum Massif, composed of igneous, metamorphic, and sedimentary rocks from the Precambrian to the Holocene, represents an ideal natural laboratory to reconstruct its geological evolution. The Song Ba basin, situated within the southeastern Kon Tum Massif, receives sediments from these geological units (1, 2). U-Pb zircon analyses from the basin's sediments identified four main age groups, which are Precambrian, Ordovician-Silurian, Permian-Triassic, and Cretaceous, with the Permian-Triassic ages being the most abundant. This age distribution provides evidence for four major magmatic-tectonic events. The Hf isotopic values vary from -11.1 to -6.7, and the model ages (TDM2) range from 1.70 Ga to 1.97 Ga, suggesting that the Van Canh Complex granitoids were formed by partial melting of a Paleoproterozoic crustal source. The U-Pb isotopic ages of zircons from the Permian-Triassic period range from 244 to 229 Ma, which coincides with the formation age of the Van Canh Complex granitoid and the regional Indosinian orogeny (2). Additionally, Cretaceous ages identified in downstream samples (SBA17, SBA15) and samples from upstream magmatic complexes (Deo Ca, Dinh Quan, Ca Na) indicate localized Late Mesozoic magmatic-tectonic activity linked to post-orogenic extension or back-arc tectonics. These processes are related to the subduction of the western Pacific oceanic crust beneath the Indochina continent during the Jurassic-Cretaceous period. These findings highlight the sediments of the Song Ba basin as valuable records of the magmatic and tectonic history of the Kon Tum Massif.

Reference

1. Doan et al. (2019). Vietnam Journal of Earth Sciences, 41(2), 105–115. 2. Doan et al. (2022). Journal of Asian Earth Sciences: X 7 100075.