

# **Provenance of Upper Triassic Langjixue Group in the eastern Himalaya orogen: Evidence from zircon geochronology and geochemistry**

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The Upper Triassic Langjixue Group (UTLG) is largely exposed in the eastern part of the Yarlung-Tsangpo Suture Zone of the southeastern Tibet, and the UTLG has been debated for its provenance in last several decades. It has been thought to be a part of the northern Indian passive margin or a piece of Lhasa Terrane.

In this study, we investigated zircon ages and chemical characteristics by using LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry) and Hf isotope methods. Detrital zircon U-Pb ages and Hf isotope results have revealed that the Meso- to Neoproterozoic (1150-850 Ma) age with  $\epsilon\text{Hf}(t)$  value of -8.1 to 10.1, Neoproterozoic to Cambrian (750-480 Ma) with  $\epsilon\text{Hf}(t)$  ranging in -24.7 to 8.5 and Carboniferous to Triassic ages (300-200Ma) with  $\epsilon\text{Hf}(t)$  between -6.1 to 13.4, and scattered Paleoproterozoic to Archean age (1800-3200 Ma) are also observed. Besides, the zircon trace elemental analysis results show that two types of zircon indicating two types of igneous sources.

Compared the zircon geochronology and geochemistry results with various surrounding terranes, we infer the UTLG was probably derived from Tethyan sequence on the India passive margin, and the two types of igneous/volcanic provenances are regarded to be formed by rifting during the Triassic time. Our results provide evidences to the palaeotectonic evolution of eastern Himalaya Orogen.