

Linking Tengchong Terrane in SW Yunnan with Lhasa Terrane in southern Tibet through magmatic correlation

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New zircon U-Pb data, along with the data reported in the literature, reveal five phases of magmatic activity in the Tengchong Terrane since the Early Paleozoic with spatial and temporal variations summarized as: Cambrian-Ordovician (500-460 Ma) to the eastern, minor Triassic (245-206 Ma) in the eastern and western, abundant Early Cretaceous (131-114 Ma) in the eastern, extensive Late Cretaceous (77-65 Ma) in the central, and Paleocene-Eocene (65-49 Ma) in the central and western Tengchong Terrane, in which the Cretaceous-Eocene magmatism was migrated from east to west (Xu et al., 2012). The increased zircon $e_{Hf}(t)$ of the Early Cretaceous granitoids from -12.3 to -1.4 at ca. 131-122 Ma to -4.6 to +7.1 at ca. 122-114 Ma identified for the first time in this study and the magmatic flare-up at ca. 53 Ma in the central and western Tengchong Terrane (Wang et al., 2014, Ma et al., 2015) indicate the increased contributions from mantle- or juvenile crust-derived components. The spatial and temporal variations and changing magmatic compositions with time in the Tengchong Terrane closely resemble the Lhasa Terrane in southern Tibet. Such similarities, together with the data of stratigraphy and paleobiogeography (Zhang et al., 2013), enable us to propose that the Tengchong Terrane in SW Yunnan is most likely linked with the Lhasa Terrane in southern Tibet, both of which experience similar tectonomagmatic histories since the Early Paleozoic.

References

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