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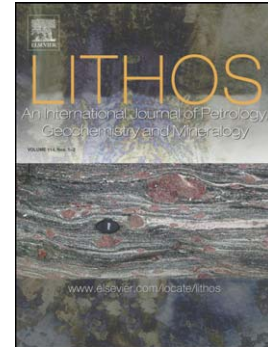
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Early Cretaceous bimodal volcanic rocks in the southern Lhasa terrane, south Tibet: Age, petrogenesis and tectonic implications

Chao Wang^{a,b*}, Lin Ding^{a,c}, Zhi-Chao Liu^d, Li-Yun Zhang^{a,c}, Ya-Hui Yue^{a,c}

^a Key Laboratory of Continental Collision and Plateau Uplift, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China

^b University of Chinese Academy of Sciences, Beijing 100049, China

^c Chinese Academy of Sciences Center for Excellence in Tibetan Plateau Earth Sciences, Beijing 100101, China

^d School of Earth Science and Geological Engineering, Sun Yat-Sen University, Guangzhou 510275, China

*Corresponding author at: Key Laboratory of Continental Collision and Plateau Uplift, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China. Tel: +86 10 84097104; Fax: +86 10 84097079.

E-mail address: wangchao@itpcas.ac.cn (C. Wang).

Abstract

Limited geochronological and geochemical data from Early Cretaceous igneous rocks of the Gangdese Belt have resulted in a dispute regarding the subduction history of Neo-Tethyan Ocean. To approach this issue, we performed detailed in-situ zircon U–Pb and Hf isotopic, whole-rock elemental and Sr–Nd isotopic analyses on Late Mesozoic volcanic rocks exposed in the Liqiongda area, southern Lhasa terrane. These volcanic rocks are calc–alkaline series, dominated by basalts, basaltic andesites, and subordinate rhyolites, with a bimodal suite. The LA–ICPMS zircon U–Pb dating results of the basaltic andesites and rhyolites indicate that these volcanic rocks erupted during the Early Cretaceous (137–130 Ma). The basaltic rocks are high-alumina (average >17 wt.%), enriched in large ion lithophile elements (LILEs) and light rare earth elements (LREEs),

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