Abstract: Early Cretaceous magmatism suggested to be related with the Kerguelen mantle plume has been reported in both the eastern and western Tethyan Himalayan terrane. Coeval magmatism (133-138 Ma) recorded by hypabyssal intrusive rocks have been recently discovered in the central Tethyan Himalaya (TH). The hypabyssal intrusions are dominated by OIB-like basaltic rocks intruded by later porphyritic/ophitic intermediate rocks and are characterized by strongly light rare earth element enrichment and prominent Na-Ta depletion and Pb enrichment. The basaltic rocks have low 143Nd/144Nd ratios ranging from 0.512365 to 0.512476 but relatively high 87Sr/86Sr ratios ranging from 0.708185 to 0.708966. The εNd(t) ratios of the basaltic rocks are between −4.33 and −2.20 and initial 87Sr/86Sr ratios are 0.707807 to 0.708557. Geochemical data demonstrate that these rocks have experienced combined crustal assimilation and fractional crystallization processes. Magmatic zircons from the hypabyssal rocks exclusively have negative εHf(t) values ranging from −0.7 to −12.7, suggestive of assimilation of crustal material. Zircons from these hypabyssal rocks have U-Pb ages ranging from 130 to 147 Ma. Inherited zircons have U-Pb ages from 397 to 2495 Ma. All the zircons are characterized by negative εHf(t) values. The Jiding ocean island basalt (OIB)-like magmatism is geochemically and geochronologically comparable with that in the western and eastern Tethyan Himalaya, indicating widespread OIB-like magmatism in the northern margin of Greater India during the Cretaceous. Collectively, these rocks can be correlated with other early Cretaceous magmatism in western Australia and northern Antarctica. Considering the similarities, we suggest that the Jiding hypabyssal rocks are also genetically related to Kerguelen plume. Within the Yarlung Zangbo Suture Zone (YZSZ), there are also numerous occurrences of OIB-like rocks derived from mantle sources different from those of N-MORB-like magmas. The OIB-like magmatism in the YZSZ is nearly coeval with that in the TH, and the two are geochemically similar. We suggest that the OIB-like magmatism in the Neo-Tethyan ocean and the northern margin of Greater India may represent the dispersed fingerprints of the Kerguelen plume preserved in southern Tibet, China.

Key words: Tethyan Himalaya, greater India, Kerguelen plume, ocean island basalt, Yarlung-Zangbo Suture Zone, eastern Gondwana

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