# Geochemical and Sr-Nd isotopic characteristics of the Deji ophiolite massif, Yarlung-Zangbo suture zone

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The Xigaze ophiolite has been one of the most studied ophiolites along the Yarlung-Zangbo suture zone (southern Tibet). The discontinuous exposures of ophiolites along the >2000 km-long YZSZ represent the remnants of the Tethyan oceanic lithosphere, whose magmatic evolution appears to have encompassed different tectonic settings during the Mesozoic [1, 2]. A Triassic-Jurassic flysch sequence in the south is thrust northwards over the YZSZ ophiolites, and the Cretaceous-Paleogene Xigaze sedimentary basin sequence is faulted against the YZSZ in the north. The Xigaze ophiolite consists predominantly of upper mantle peridotites, intruded by gabbroic, doleritic and plagiogranite dikes and overlain by mafic lava sequences. We present new geochemical and Sr-Nd isotopic data from suites of volcanic rocks, gabbros and harzburgites in the Deji massif of the Xigaze ophiolite.

Most of the major and trace element compositions of the analyzed samples correlate with Zr concentrations, suggesting that our samples largely preserve their original compositions. MORB-normalized trace element patterns show significant Nb negative anomalies compared with the neighboring rare earth element (REE). We recognize two types of volcanic rocks: (1) One type displays slight light REE depletion with negative Zr and Hf anomalies, and lower initial Sr isotopic ratios (<0.7040). (2) The other type exhibits convex REE patterns with positive Zr and Hf anomalies, and higher initial Sr ratios (>0.7040). Trace element patterns of Type 1 are similar to those of forearc basalts and oceanic arc low-K tholeiites [3, 4]. Positive Zr and Hf anomalies of Type 2 volcanic rocks are reminiscent of boninites [5]. These observations suggest that the Deji massif likely formed in an intraoceanic suprasubduction setting with a rapidly extended and exhumed forearc setting, where the upper mantle peridotites of the Tethyan lithosphere were exhumed on the seafloor and overlain by submarine lavas and pelagic-hemipelagic sediments.

[1] Xu et al., *GR*, 2015. [2] Yang & Dilek, *Episodes*, 2015.
[3] Reagan et al., *G3*, 2010. [4] Pearce et al., *JP*, 1995.
[5] Hickey-Vargas, in *Boninite*, 1989.