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Persistence of fertile and hydrous lithospheric mantle beneath the northwestern Ethiopian plateau: Evidence from modal, trace element and Sr-Nd-Hf isotopic compositions of amphibole-bearing mantle xenoliths

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ABSTRACT

We present new trace element compositions of amphiboles, Sr–Nd–Hf isotope compositions of clinopyroxenes and mineral modes for spinel peridotite xenoliths that were entrained in a Miocene alkali basalt (Gundeweyn, northwestern Ethiopian plateau), in order to understand the geochemical evolution and variation occurring within the continental lithospheric mantle (CLM) in close proximity to the East African Rift system, and its dynamic implications. With the exception of a single amphibole-bearing sample that is depleted in LREE ($La/Yb_N = 0.45 \times CI$), amphiboles in lherzolites and in one harzburgite show variable degrees of LREE enrichment

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