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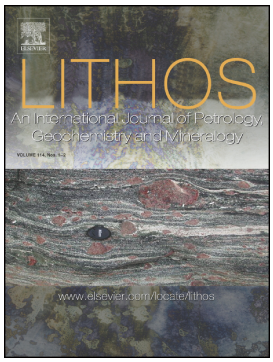

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Sodium-chromium covariation in residual clinopyroxenes from abyssal peridotites sampled in the 43–46°E region of the Southwest Indian Ridge

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ABSTRACT

Mantle-derived peridotites sampled at three dredge sites between the Discovery and Indomed fracture zones on the Southwest Indian Ridge axis are analyzed for petrography and major and trace element mineral compositions. While textures and microstructures are those typical of normal residual peridotites these rocks display a large compositional variation encompassing the whole spectrum of abyssal peridotites even at the scale of a single dredge site (≤ 1km). Particularly, clinopyroxenes in peridotites dredged at 44.03° E show a huge variation in sodium contents positively correlated with chromium concentrations. Observed Na-Cr enrichments exceed the commonly reported contents of the spinel abyssal peridotites. Similar values are only found in very few peridotite samples collected at ultra-slow spreading ridges. Major