Petrogenesis of serpentinized peridotites from the Manipur Ophiolite Complex, Indo-Myanmar Orogenic belt, NE India: Constraints from Nd isotopic ratios and trace elemental abundances

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The Manipur Ophiolite Complex (MOC) is a part of the NNE-SSW trending Indo-Myanmar Orogenic Belt (IMOB) which was formed due to subduction and obduction processes caused by the collision of Indian plate with the Myanmar plate. Origin of rocks in MOC has remained an outstanding issue. Different stuides, based on mineral or whole-rock elemental abundances, have suggested variety of sources for the MOC rocks, which include Ocean Island Basalt (OIB), Mid Oceanic Ridge Basalt (MORB), P-MORB and Subduction Zone (SSZ) [1, 2, 3, 4].

We present new results of trace-element cncentrations including REEs, and first $^{143}Nd/^{144}Nd$ isotope data from the MOC and attempt to understand petrogenesis of srepentinized peridotite which is the dominant rock-type exposed in the MOC belt. Sepentinized peridotites show two types of REE patterns: 1) strongly LREE depleted, with slight Ce positive anomaly and 2) LREE enriched with Ce negative anomaly. LREE depleted samples show high and positive ε_{Nd}(t=90Ma) values (+4.5 to +12.0) while LREE enriched samples yield negative ε_{Nd} (t=90Ma) values (-4.1 to -1.0).

Elemental abundaces in serpenized peridotites and in mafic rocks in MOC can be explained by step-wise batch-melting of a spinel-lherzolite mantle. Melting up to a total of 17% leaves a residue with a range of elemental abundaces similar to that of the peridotites while the complemetray melt corresponds to the mafic rocks.

[1] Ningthoujam *et al*. (2012) *Journal of Asian Earth Sciences* **50**, 128-140. [2] Pal *et al*.(2014*) Miner Petrol* **108**, 713–726. [3] Singh *et al*. (2013)*J. Asian Earth Sci*. **66**, 258–276. [4] Khogenkumar *et al*. *(*2016) *Journal of Asian Earth Sciences***116**, *42-58*.