

## **Re-Os geochemistry of mantle pyroxenites from the Bohemian Massif, Czech Republic**

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Mantle pyroxenites and pyroxenite layers within peridotite massifs provide direct evidence of mantle heterogeneity due to their highly variable Sr-Nd-Hf-Pb-Os isotopic compositions.

We presented isotope data from the Bohemian Massif, the easternmost part of the European Variscan chain. Samples were collected from two different areas of the Moldanubian Zone: (1) Gföhl Unit and (2) Kutná Hora Crystalline Complex. The pyroxenite composition of the studied samples ranges from clinopyroxenite to websterite and they likely represent crystal cumulates ( $\pm$  trapped liquid) from melts migrating along conduits, and reacting with peridotite in a mantle wedge above a Variscan subduction zone.

The studied samples have relative variable Re and Os concentrations that varies from 0.103-1.45 ppb and 0.18-1.84 ppb, respectively. Radiogenic  $^{187}\text{Os}/^{188}\text{Os}$  ratios ranging from 0.1425 to 0.3247. That results in superchondritic  $\gamma\text{Os}$  values from +3 to +132. The relative high Re contents coupled with radiogenic Os isotopic compositions and these pyroxenites may indicate significant Re and radiogenic Os, which are imported from basaltic melts during subduction (mantle refertilization). Two of the studied samples have only slightly superchondritic  $^{187}\text{Os}/^{188}\text{Os}$  composition, which is in agreement with their derivation from subcontinental lithospheric mantle. In contrast, most of the pyroxenites display radiogenic  $\gamma\text{Os}$  suggesting variable, but significant contribution of recycled crustal material (subducted oceanic crust) in the migrating upper mantle melts from which they were crystallized. This enrichment was most likely associated with Variscan subduction processes. Melt-rock reactions between previously depleted peridotite and invading melts with highly radiogenic  $^{187}\text{Os}/^{188}\text{Os}$  composition ( $\gamma\text{Os}$  up to +132) would lead to mantle refertilization with significant addition of Re.