# Small-scale geochemical heterogeneity in the upper mantle of the Nógrád-Gömör Volcanic Field (N-Hungary – S-Slovakia)

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The upper mantle of the Nógrád-Gömör Volcanic Field, located on the northern part of the Pannonian Basin, has been the subject of several physico-chemical studies in the past few years through the examination of peridotite xenoliths hosted by Plio-Pleistocene alkali basalts. The volcanic field can be divided into three major domains based on the age and location of the basalts, and each of them has been discretely sampled and analysed. This study synthesises and compares the results, providing a broad insight into the geochemical properties and processes of the discussed mantle domains.

The xenoliths show different degrees of depletion due to partial melting, with subsequent overprinting by different types of metasomatism. These effects include modal metasomatism in the form of amphibole in samples of the northern and southern part, as well as amphibole and secondary clinopyroxene in the central part. Cryptic metasomatism is detected as Fe-, Mn- and Ti-enrichment in some of the samples from the central part, and as LREE-enrichment in the northern and central part. Cryptic metasomatic effects in the central part seem to be connected to a process that caused the formation of secondary clinopyroxenes, ultimately leading to wehrlitic compositions in some xenoliths from the central part [1]. Amphibole formation, however, appears to predate the cryptic metasomatic event, as their LREE patterns match those of clinopyroxenes in the samples where they occur.

Based on these results, we suggest that at least two major metasomatic processes have affected the upper mantle of the volcanic field, with different intensity in the three sub-areas.

[1] Patkó *et al*. (2013) *Mineral. Mag*. **77,** 1934.