

Geochemical Implications of OIB Type Basalt in Garnet-Spinel Stability Field in Southern Thrace Region, Turkey

B. GUNES^{1*}, B. KURKCUOGLU¹, B. HANAN²
T. YURUR¹, AND T. FURMAN³

¹ Dept. Geological Engineering, Hacettepe University, Ankara
Turkey (*correspondance: b.n.gunes@gmail.com,
biltan@hacettepe.edu.tr, tyurur@hacettepe.edu.tr)

² Dept. Geol. Sciences, San Diego State University, San Diego
California (bhanan@mail.sdsu.edu)

³ Dept. Geosciences, Penn State University, University Park PA
(furman@psu.edu)

Extensive alkaline basaltic activity developed in the Thrace region of western Turkey in late Miocene. We focus on xenolith bearing mafic products with geochemical signatures typical of OIB source developed in extensional continental settings.

We present new major, trace element and isotopic (Re-Os) data on xenoliths and mafic (basanite, basalt and trachybasalt) host rocks. Xenoliths are spinel-bearing lherzolites and less abundant dunites. Olivine compositions in host rocks and also in xenoliths range between Fo71-95.

Incompatible trace element ratios (Nb/La 1.89-1.97, Nb/U 44.12-48.74, Ce/Pb 26.2-33.44, Ba/La 9.91-10.72, Th/La 0.11-0.12) imply that lavas are derived from typical OIB sources often found in extensional continental settings. Furthermore, ¹⁸⁷Os/¹⁸⁸Os isotopic ratios of the host basalt (0.1279- 0.1439) and xenoliths (0.1191-0.1379) are characteristic of primitive source regions.

High Tb/Yb(N) values (2.33-3.16) indicate that basaltic rocks are derived from beneath the garnet-spinel transition zone; this interpretation is also supported by high La/Yb(N) values (17-35) [1]. The geochemical data suggest that typical OIB magmatism generated at the southern part of Thrace region could be related to the inception of the Slab-rollback.

[1] Zhang & Wang (2002), *Acta Geologica Sinica* **76**, 229-238