



Reversely Zoned Alaskan-Type Mafic-Ultramafic Cumulates in The Eastern Pontide Magmatic arc , NE Turkey

O. Bektas (1), Y. Eyuboglu (1), E. Bozkurt (2), C. Sen (1), B. Rojay (2)

(1) Department of Geological Engineering, Karadeniz Technical University, Trabzon, Turkey,
(2) Department of Geological Engineering, Middle East Technical University, Ankara,
Turkey (obektas@ktu.edu.tr / Fax: +90 462 3257405)

Phlogopite- hornblende bearing Alaskan type mafic-ultramafic cumulates are found as a small intrusions in the Hercynian basement of the eastern Pontide magmatic arc that evolved during the Mesozoic and Cenozoic. Geological evidences imply that emplacement of the Alaskan type mafic ultramafic intrusion in the Paleozoic Pulur metamorphic massif might be related to the pre Liassic extensional tectonic regime of the eastern pontide magmatic arc

The evidences of the forcefull injections and contact metamorphisms of the elliptical small bodies of the Phlogopite-hornblende bearing mafic-ultramafic rocks are widespread in the their wall rocks. Cumulative rocks are represented by peridotite, melagabbronorite, gabronorite and anorthosite. These non ophiolitic mafic-ultramafic rocks are cut by the ilmenite-bearing gabbro-norites, microdiorite and quartz diorite dikes. Gabbros and anorthosite are situated in the center of the intrusion and surrounded by the dunites as a formation of the reversely zoned Alaskan type mafic- ultramafic cumulates. Cr-Al spinel, olivine and plagioclase are the first crystallizing phases in the cumulate rocks. Intercumulus minerals are consist of pyroxene, hornblende, phlogopite and ilmenite. These crystallization sequences in the mafic-ultramafic cumulates suggest that they are derived from a high-Al hydrous basaltic parental magma. Mafic-ultramafic cumulates are slightly enriched in LILE and LREE, depleted in HFSE and HREE with respect to chondrite and primitive mantle and show remarkable positive Eu and negative Nb, Ti, P anomalies. Both field data and geochemical results (microprobe, major-trace-rare earth element analysis) show that these non ophiolitic

mafic-ultramafic rocks are arc-related Alaskan-type mafic-ultramafic cumulates that might be derived from a high aluminous-hydrous basaltic parent magma related to subduction.