## GEOLOGIC AND GEOCHEMICAL CHARACTERISTICS OF BASIC VOLCANITE-HOSTED LATERITIC BAUXITE OCCURRENCE IN UCKARDESLER-HATIBINAGIL HILL (ISPARTA-TURKEY)

**Bozkir Ye., Ayhan A., Arik F.**
*Selçuk University, Department of Geological Engineering, Selçuklu, Konya, Turkey*
*e-mail: y_bozkir@hotmail.com, ybozkir@selcuk.edu.tr*

Uckardesler-Hatibinagil Hill bauxite occurrence is cropped out in NE of Dedecam (Sarkikaraagac-Isparta), situated at the top of the Islikayatepe volcanite and shows autochthonous bauxite character. Thickness of profile, represented by basic volcanite, partly weathered volcanite (saprolite) and bauxite levels, is 120 meters. Two different bauxite levels that are observed in this lateritic profile, contain average 43.55 % $Al_2O_3$, 27.0 % $Fe_2O_3$, 4.79 % $TiO_2$, and 11.36 % $SiO_2$. Main mineralogical compositions of bauxites are represented by diaspore, hematite, bohmite, kaolinite, saponite, nontronite and anatase. Total rare earth element (REE) of bauxites is 71.8 ppm. Ce is the most abundant element in REE with an average 26.7 ppm and it is followed by La (21.04 ppm) and Nd (12.2 ppm). Light rare earth elements (LREE; La-Sm) (65.72 ppm) were enriched 12 times as much as heavy rare earth elements (HREE; Gd-Lu) (5.43 ppm). Chondrite-normalized REE values for the bauxites are $(La/Lu)_N$ = 16.49, $(Gd/Yb)_N$= 1.85, $(La/Sm)_N$= 6.01, $(La/Yb)_N$ = 19.11, Eu/Eu* = 1.15 and Ce/Ce* = 0.63; basalt-normalized REE values for the bauxites are $(La/Lu)_N$= 4.26, $(Gd/Yb)_N$= 1.0, $(La/Sm)_N$= 3.31, $(La/Yb)_N$= 4.78, Eu/Eu* = 1.07, Ce/Ce* = 0.65. Negative Ce anomaly suggests that bauxite is formed under the oxidation condition and derived from basic volcanites. The REE contents of lateritic bauxites are 14 times higher than those of the chondrites, 9 times those of the world, 6 times those of the primitive mantle and 5 times those of the peridotites.

## ON THE PROBLEM OF COMPOSITIONAL ZONATION IN MAFIC DYKES OF THE ÅLAND-ÅBOLAND DYKE SWARM, KESTIÖ ISLAND, SW FINLAND

**Chistyakova S.Yu., Latypov R.M.**
*Department of Geosciences, University of Oulu, Oulu, Finland*
*e-mail: sofya.chistyakova@oulu.fi, rais.latypov@oulu.fi*

One remarkable feature of mafic-ultramafic intrusions and related ore deposits is the occurrence of marginal zones in which mineral crystallization sequences and compositional trends are distinctly opposite to that predicted by phase equilibria diagrams. Such marginal zones are commonly characterized by a decrease in the number of crystallizing phases in progressively formed rocks while minerals become gradually more primitive inwards from intrusive contacts. Examples include marginal reversals in mafic sills and layered intrusions, reverse concentric zonation in Alaska-type complexes, D-shaped compositional profiles in komatiitic lava flows, reverse internal zonation in massive sulphide bodies and iron oxide ores, etc. Such marginal zones are almost universally developed in magmatic bodies irrespective of their age, geographical location, size, form, and even composition of parental magmas, strongly indicating that some fundamental process or processes are involved in their genesis [14].

In attempts to resolve this puzzle, igneous petrologists have suggested about ten different hypotheses which we have recently reviewed [12, 13, 14]. Among them are magma supercooling [17], contamination of magma by country rocks [23], successive emplacement of magma that becomes increasingly more primitive with time [18], crystal settling of intratelluric phenocrysts or newly grown crystals in the chamber [1], intrusion of successively more primitive batches of magma carrying progressively more phenocrysts [15], flow differentiation during intrusion of olivine or orthopyroxene phenocryst-laden magma [7, 16], crystallization from compositionally stratified magma in the chamber [24], reaction of cumulus minerals with an intercumulus melt increasing in amount towards the base