

Rare Earth Element (REE) Geochemistry of Tepeköy Sandstones (Central Anatolia, Turkey)

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Abstract : Sandstones from Upper Eocene - Oligocene Tepeköy formation (Member of Mezgit Group) that exposed on the eastern edge of Tuz Gölü (Salt Lake) were analyzed for their rare earth element (REE) contents. Average concentrations of EREE, Σ LREE (Total light rare earth elements) and Σ HREE (Total heavy rare earth elements) were determined as 31.37, 26.47 and 4.55 ppm respectively. These values are lower than UCC (Upper continental crust) which indicates grain size and/or CaO dilution effect. The chondrite-normalized REE pattern is characterized by the average ratios of $(La/Yb)_{cn} = 6.20$, $(La/Sm)_{cn} = 4.06$, $(Gd/Lu)_{cn} = 1.10$, $Eu/Eu^* = 0.99$ and $Ce/Ce^* = 0.94$. Lower values of Σ LREE/ Σ HREE (Average 5.97) and $(La/Yb)_{cn}$ suggest lower fractionation of overall REE. Moreover $(La/Sm)_{cn}$ and $(Gd/Lu)_{cn}$ ratios define less inclined LREE and almost flat HREE pattern when compared with UCC. Almost no Ce anomaly (Ce/Ce^*) emphasizes that REE were originated from terrigenous material. Also depleted LREE and no Eu anomaly (Eu/Eu^*) suggest an undifferentiated mafic provenance for the sandstones.

Keywords : central Anatolia, provenance, rare earth elements, REE, Tepeköy sandstone

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