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Mantle derived potassic and ultra-potassic rocks with enrichments of Rare Earth Elements (REE) on peneplains of Golcuk District (Southern Turkey)

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Reports on fieldwork on peneplain surfaces characterized by exogenic residual formations in the Golcuk district of SW Turkey.

Various igneous rocks such as phonolite, tracyhite, latite were identified in the field. These products were interpreted to be mantle derived potassic and ultra-potassic rocks. Residual formations related to these rocks occur at Golcuk district in Isparta Province, Southwest Turkey. These formations are associated with dolomitic clayed limestone, aforementioned volcanic rocks, and their weathering products have been selected as target areas for probable REE-enrichments. Also in the east of the field area lamporites predominantly made up of large crystals of leucite and phlogopites in trachytic groundmass containing olivine, clinopyroxene, and altered feldspar were recognised.

Results indicate high values for the LREE elements such as La (900-1200 ppm), Ce (700-900 ppm), Nd (200-250 ppm), Sc (80-120 ppm), also relatively high values for Th (200-250 ppm). It is suggested that the LREE's were originated from the lamproitic rocks, while Sc and Y were considered to derive from the ophiolites and the clayey dolomitic limestones. The source of Th is unclear.

