

Provenance and Paleoweathering Conditions of Doganhisar Clay Beds

Authors : Mehmet Yavuz Huseyinca

Abstract : The clay beds are located at the south-southeast of Doğanhisar and northwest of Konya in the Central Anatolia. In the scope of preliminary study, three types of samples were investigated including basement phyllite (Bp) overlain by the clay beds, weathered phyllite (Wp) and Doğanhisar clay (Dc). The Chemical Index of Alteration (CIA) values of Dc range from 81 to 88 with an average of 85. This value is higher than that of Post Archean Australian Shale (PAAS) and defines very intense chemical weathering in the source-area. On the other hand, the A-CN-K diagram indicates that Bp underwent high degree post-depositional K-metasomatism. The average reconstructed CIA value of the Bp prior to the K-metasomatism is mainly 81 which overlaps the CIA values of the Wp (83) and Dc (85). Similar CIA values indicate parallel weathering trends. Also, extrapolation of the samples back to the plagioclase-alkali feldspar line in the A-CN-K diagram suggests an identical provenance close to granite in composition. Hereby the weathering background of Dc includes two steps. First one is intense weathering process of a granitic source to Bp with post-depositional K-metasomatism and the latter is progressively weathering of Bp to premetasomatised conditions (formation of Wp) ending with Dc deposition.

Keywords : clay beds, Doganhisar, provenance, weathering

Conference Title : ICGS 2016 : International Conference on Geological Sciences

Conference Location : Copenhagen, Denmark

Conference Dates : August 15-16, 2016