



Investigation Of Alluvial Fan With Geophysical Methods In Izmit-Derince

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Abstract: Deep seismic reflection profiles of total length of 285 m. in three regions, seismic refraction profiles of total length of 225 m. in five regions and resistivity profiles of total length of 3685 m. in four regions were carried out in order to examine the Derince alluvial fan. The data of two mechanical wells drilled in this region were used in interpretation of the underground layers. The layers were examined in the deep seismic cross-sections at a depth of more than 700 m. which are generally compact claystones and sandstones. The velocity of the claystones vary between 600 m/s and 2000 m/s and their resistivity values change between 20 Ω m. and 40 Ω m.

A normal fault about 1250 m. in length whose trough plane in south direction was determined. The continuation of this fault was not determined due to dens urbanization in the E and W of Çene Dere and Kaşkal Dere. This fault is younger than Trryenien since it cuts the Şirintepe formation of upper Pleistocene (Trryenien) age.

Two faults with vertical troughs 19 m. and 62 m. were determined at the depths of 120 m. and 500 m. on the deep seismic cross sections carried out at the south of D-100 government high-way. The continuation of these faults could not be observed because of the huge urbanization around the seismic profile.

The formation which continues below 700 m. having a velocity of 2500 m/s in the seismic cross sections between Tem Highway and D-100 Highway is the Sopalı formation of lower Ordovisian age or lower Trias aged Izmit formation that can be assumed as the basement in this region.