



The Effects of Landslides on Gravity Measurements

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Microgravimetry is a very useful tool used by engineering geologists to examine various problems in predicting location of voids, size and depth of mining, determination and monitoring basin structures and faults. In landslides where the down slope of soils are under the influence of gravity, it should be noted that the gravity measurements on a landslide should be influenced.

To test the slope effect in gravity measurements of a landslide we selected the area in Küçükçekmece, Avcılar located in the north-west of Marmara region. The slope geometry was determined by using 2-D Multi-channel analysis of Surface Wave (MASW-REMI), while single station microtremor measurements were applied to determine the fundamental frequency on the slope. To test the effect of the slope in microgravity measurements we employed daily gravity measurements with 50 meter interval in one profile line, afterwards continuous measurements were applied on the slope in an interval during 2 hours.

As a result, we found some small anomalies on the slope differently from its adjacent area. This effect has to be removed from gravity measurements, especially in mining investigation like chrome where small anomaly differences are considered as an important factor.