



Determination of the Basin Structure Beneath European Side of Istanbul

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Istanbul (near North Anatolian Fault Zone:NAFZ, Turkey) is located in northern part of Sea of Marmara, an area that has been influenced by possible Marmara Earthquakes. The general geology of Istanbul divided into two stratigraphic unit such as sedimentary (from Oligocene to Quaternary Deposits) and bedrock (Paleozoic and Eocene). The bedrock units consists of sand stone, clay stone to Paleozoic age and limestone to Eocene age and sedimentary unit consist of sand, clay, mil and gravel from Oligocene to Quaternary age.

Earthquake disaster mitigation studies divided into two important phases, too. Firstly, earthquake, soil and engineering structure problems identify for investigation area, later on strategic emergency plan can prepare for these problems. Soil amplification play important role the disaster mitigation and the site effect analysis and basin structure is also a key parameter for determining of site effect. Some geophysical, geological and geotechnical measurements are required to defined this relationship. Istanbul Megacity has been waiting possible Marmara Earthquake and their related results.

In order to defined to possible damage potential related to site effect, gravity measurements carried out for determining to geological structure, basin geometry and faults in Istanbul. Gravity data were collected at 640 sites by using a Scientrex CG-5 Autogravity meter Standard corrections applied to the gravity data include those for instrumental drift, Earth tides and latitude, and the free-air and Bouguer corrections. The corrected gravity data were imported into a Geosoft database to create a grid and map of the Bouguer gravity anomaly (grid cell size of 200 m).

As a previously results, we determined some lineminants, faults and basins beneath Istanbul City. Especially, orientation of faults were NW-SE direction and some basin structures determined on between Buyukcekmece and Kucukcekmece Lake.