Geophysical Research Abstracts,
Vol. 11, EGU2009-8311-3, 2009
EGU General Assembly 2009

A Study on Soil Effect in Avcilar Campus by using H/V technique, seismic refraction, SPAC and MASW Measurements

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Aim of this study is to estimate soil effect in Avcilar. When great earthquake occurred on August 17 1999 in Kocaeli in Turkey, many engineering building collapsed and people death in Avcilar. Many scientists ask themselves why Kocaeli earthquake was caused great damage in Avcilar that is far from earthquake source. Site/soil amplification is one of the most important parameters in determination of site dynamic behavior. In Avcilar (Istanbul) region, there were two possible problems that caused earthquake damage: one is regional slope stability problem and second is amplification of earthquake waves due to the resonance. We focused on second one. We performed on seismic refraction, microtremor and SPAC measurement in Istanbul University Avcilar Campus. Soil fundamental frequency was obtained and compared harmony and/or contrast with soil 2-D soil geometry and variation of Vs velocity. Microtremor measurement was also evaluated by classical fourier spectrum and wavelet transform. Bedrock depth was estimated with SPAC measurement. Shear wave velocity and thickness of P-S logging data and SPAC measurement compared with emprical relationship which suggest Ozel et al,(2008) in Istanbul City.