

Development of Seismic Hazard Maps for Georgia

Probabilistic Seismic Hazard Analysis (PSHA) based on standard methodology still remains effective to predict earthquake probabilities particularly in longer time scales. In this work PSHA is performed for Georgia by improved version of the standard methodology developed in the frame of EMME project. A basic aspect of this new approach is to use hybrid empirical ground motion prediction equations developed for PGA and SA at selected periods. Georgia does not have sufficient strong ground motion data to build fully empirical ground motion prediction models. The host-to-target method was applied in two regions in Georgia with different source mechanisms. Two different regions with abundant strong motion data were chosen as host regions. One of them is in Turkey with the dominant strike-slip source mechanism while the other is in Iran with mostly events with reverse mechanism. The hybrid-empirical method developed by Campbell (2003) was used to obtain the host-to-target coefficients. The coefficients were then applied to global and regional ground motion prediction equations, which are consistent with Georgian strong ground motion data, to calculate probabilistic seismic hazard in terms of peak ground (PGA) and spectral acceleration (SA) for 2%, 5%, 10% probability of exceedance rates in 50 years.

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