



Ground Motion Prediction Models for Caucasus Region

Nato Jorjiashvili, Tea Godoladze, Nino Tvaradze, and Nino Tumanova
Georgia (nato_jorjiashvili@iliauni.edu.ge)

Ground motion prediction models (GMPMs) relate ground motion intensity measures to variables describing earthquake source, path, and site effects. Estimation of expected ground motion is a fundamental earthquake hazard assessment. The most commonly used parameter for attenuation relation is peak ground acceleration or spectral acceleration because this parameter gives useful information for Seismic Hazard Assessment.

Since 2003 development of Georgian Digital Seismic Network has started. In this study new GMP models are obtained based on new data from Georgian seismic network and also from neighboring countries. Estimation of models is obtained by classical, statistical way, regression analysis. In this study site ground conditions are additionally considered because the same earthquake recorded at the same distance may cause different damage according to ground conditions.

Empirical ground-motion prediction models (GMPMs) require adjustment to make them appropriate for site-specific scenarios. However, the process of making such adjustments remains a challenge. This work presents a holistic framework for the development of a peak ground acceleration (PGA) or spectral acceleration (SA) GMPE that is easily adjustable to different seismological conditions and does not suffer from the practical problems associated with adjustments in the response spectral domain.