



Historical Earthquake scenario and Seismic risk for Big Cities in Georgia

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The study and detailed analysis of the original documents and researches have allowed us to create a new catalog of historical earthquakes of Georgia from 1250 BC to 1900 AD. Recalculation catalog of instrumental period from 1900 up to now together with new historical catalog allowed us to investigate completeness of earthquake catalog. Estimation fault plane solution, new data from seismic profiles for big cities of Georgia allowed to constrain new seismic sources in large scale. Investigation of seismic parameters for seismic hazard as depth distribution, seismic rate, M_{max} and b value on one side and new detail data of active faults gave us possibility to run strong historical earthquake scenario and estimate of ground shaking map for these sites. For calculation of shaking map we used empirical ground motion model that was developed for PGA and SA at selected periods for Georgia. Some local investigation of site was done that allow to estimate such parameters as dominant frequency and amplification factor. Investigation of inventory map of element at risk allows us estimate social and economic losses for large cities.