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Caucasus Seismic Hazard

The Caucasus is one of the most active segments of Alpine-Himalayan system. High seismicity of the area reflects the active tectonics of the region. In 2016, Caucasus countries started a joint Probabilistic Seismic Hazard Assessment (PSHA) supported by LLNL (Lawrence Livermore National Laboratory). The major goal of the project was to compile regional seismic catalog in order to provide reliable input for the seismic hazard assessment. The Caucasus has a documented historical catalog stretching back to the 2000 years. Instrumental period started in 1899, when the first seismograph was installed in Tbilisi. Seismic network grew over the years and number of stations increased in the region, providing better network coverage. Data recorded by the regional network were stored as the seismic bulletins in a paper form. We digitized bulletin data from former Soviet Union monitoring network (1955-2004) with combined arrivals from neighboring countries to improve location accuracies. We measured direct M_w 's using coda calibration method for magnitude relationship. Number of events in the compiled catalog is significantly higher than the existing local and international catalogs (e.g. International Seismological Center (ISC)). We combined this with alternative source and ground motion models in probabilistic framework to modernize the building codes in Georgia.

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