of the Caucasus region: a comprehensive, revised catalog for 1951-2019

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The Lawrence Livermore National Laboratory (LLNL) and the Institute of Earth Sciences (IES), Ilia State University developed a project to generate a new seismic catalog for Georgia. The main objective of the project was to provide a reliable seismicity map that can be effectively used in a new probabilistic seismic hazard analysis for Georgia. Monitoring centers in Armenia and Turkey have also contributed bulletins from their own archives and provided picks for selected events. A subset of events from the IES bulletin was used as an input for the seismic hazard analysis. This data set is combined with the seismological bulletins of the Republic Seismic Survey Center (RSSC) and the International Seismological Centre (ISC) bulletin.

We present the relocation results of more than 20,000 events in the bulletin. We relocated each event with iLoc, a single event location algorithm, using Regional Seismic Travel Time (RSTT) predictions to improve locations. Using the iLoc results as initial locations, we then applied Bayesloc, a multiple event location algorithm, to simultaneously relocate the entire seismicity of the Caucasus region. The results show significant improvements in the understanding of regional seismicity.

Promotional text

Strengthen the engagement of the scientific communities working in test ban monitoring. As a result of the contribution of this large dataset, regional earth models will be improved which will reduce the uncertainties in regional discrimination studies.

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