REVIEW OF PROBABILISTIC SEISMIC HAZARD ASSESSMENT IN GEORGIA - MAIN CHALLENGES

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Abstract: *Review of probabilistic seismic hazard assessment in Georgia with discussion on main challenges are presented.*

Key words: Seismic hazard, seismogenic source model

Probabilistic Seismic Hazard Analysis (PSHA) was the subject of several investigations for the Caucasus in different regional and national projects. All obtained results of PSH estimated on new approaches show different results. Sometimes differences between newly calculated results are not significant, though sometimes differences become substantial.

We analyzed the main reasons for the existing significant differences to understand how sensitive PSHA results are to input data and calculation methodology. Input data actually is the main challenge that provides the main differences in PSHA. Sometimes it is due to subjective judgment during evaluation inputs, like seismogenic source models as well as in the interpretation of limited data.

Sometimes it is due to different methodologies for estimating seismic parameters – recurrence parameters b and a value. Deferent results are obtained due to different selected ground motion prediction equations as well as using different PSHA assessments. To reduce epistemic uncertainty is possible through the incorporation of alternative models in a logic tree structure and associated weighting.

The most vulnerable issue that influences PSHA results is unavailable national data that cannot be taken into account even in logic tree structure. Work presented here shows an updated national map of Georgia with the updating of the regionally harmonized datasets (i.e. earthquake catalogs, area seismic sources) with focus on data collected in recent years.