

Intensity prediction equation – ShakeMap – for Austria

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Improvements to the intensity prediction equation (IPE) for Austria are undertaken continuously.

Austria is characterized by a moderate seismicity and rather low hazard areas. However, earthquakes can still cause great damage and losses, especially in densely populated and industrialized areas. The aim of this study is to obtain an intensity prediction equation for risk and hazard assessment with the final goal of updating the Austrian seismic hazard map from the macroseismic data base.

So far, the IPE model has been obtained using an ordinary Least Square Adjustment. The inclusion of topographic information was taken into account before the model computation. Once the data was modelled, a geology correction, based on a classification of eleven geological units, was obtained and applied to the data set.

As a further step, a relationship between Vs30 measurements and intensity data is presented. A side from this, our ground-shaking model was also verified.

The data set includes more than 250 earthquakes between the years 1000 and 2014. The selected earthquakes had to meet the following criteria: the moment magnitude was constrained to be greater than or equal to 3; only IDP's with local intensities equal to or greater than III were kept; and exclusively events with at least 10 IDP's were used.

As verification of the IPE, the events, which met the same requirements as the ones to compute the model, from the period 2015-2017 were evaluated. The data set comprises a total of 19 earthquakes and almost 17.000 IDP's. The results will be presented in the meeting.