



Topography and geology site effects from the intensity prediction model (ShakeMap) for Austria

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The seismicity in Austria can be categorized as moderated. Despite the fact that the hazard seems to be rather low, earthquakes can cause great damage and losses, specially in densely populated and industrialized areas. It is well known, that equations which predict intensity as a function of magnitude and distance, among other parameters, are useful tool for hazard and risk assessment. Therefore, this study aims to determine an empirical model of the ground shaking intensities (ShakeMap) of a series of earthquakes occurred in Austria between 1000 and 2014. Furthermore, the obtained empirical model will lead to further interpretation of both, contemporary and historical earthquakes.

A total of 285 events, which epicenters were located in Austria, and a sum of 22.739 reported macroseismic data points from Austria and adjoining countries, were used. These events are enclosed in the period 1000-2014 and characterized by having a local magnitude greater than 3. In the first state of the model development, the data was careful selected, e.g. solely intensities equal or greater than III were used. In a second state the data was adjusted to the selected empirical model. Finally, geology and topography corrections were obtained by means of the model residuals in order to derive intensity-based site amplification effects.