Geophysical Research Abstracts, Vol. 7, 10424, 2005
SRef-ID: 1607-7962/gra/EGU05-A-10424

Stochastic modelling of ground acceleration for earthquakes in Iceland

S. Olafsson (1) and R. Sigbjornsson (1)

(1) University of Iceland, Earthquake Engineering Research Centre, Selfoss, Iceland (simon@hi.is / Fax: +354 525 4140)

In the work presented here the available acceleration records from earthquakes in Iceland are used to study the characteristics of strong ground motion with the main objective of improving models for seismic hazard studies. A ground motion model based on seismic source models has been applied to the ground motion recordings. This ground motion model is useful for describing the attenuation of ground motion parameters such as peak ground acceleration, root mean squared acceleration and spectral acceleration. The model can also be used for simulating realistic input records for computational structural models using a stochastic approach. The model parameters have direct physical meaning which is not the case for regression coefficients of empirical attenuation relations. Site amplification is also considered in the model and is estimated for each site by using non-linear optimization to obtain a fit between the model and acceleration records. A comparison of the results for the attenuation of the ground motion parameters is compared with results from other regions.