Geophysical Research Abstracts, Vol. 9, 03925, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-03925

Attenuation relations for the intermediate depth Vrancea (Romania) earthquakes based on Fourier amplitude spectra

V. Sokolov (1), K.-P. Bonjer (1), F. Wenzel (1), M. Radulian (2) and B. Grecu (2)

(1) Geophysical Institute of Karlsruhe University, Karlsruhe, Germany, (2) National Institute for Earth Physics, Bucharest-Magurele, Romania

(Vladimir.Sokolov@gpi.uni-karlsruhe.de / Fax +49 721 71173)

We present regional attenuation relations for Peak Ground Acceleration (PGA), Peak Ground Velocity (PGV), Response Spectra Amplitudes (RSA), and seismic intensity (MSK or MMI scale) for the Vrancea intermediate depth earthquakes (SE-Carpathians) and territory of Romania. The Vrancea focal zone is characterised by a high rate of occurrence of large earthquakes in a narrow focal zone (depth 70-170 km). The used earthquake ground motion database includes several hundred acceleration records from more than 120 small magnitude ($M < 5.5$) earthquakes occurred in 1996-2004 time interval and several records obtained during five larger (M 7.4, 7.2, 6.9, 6.3, and 6.0) earthquakes. The attenuation relationships are based on Fourier Amplitude Spectrum (FAS) source scaling and attenuation models, and generalised site amplification functions. The PGA, PSV, and RSA attenuation relations were calculated using a stochastic technique. The seismic intensity attenuation models were evaluated using the recently developed relations between intensity and FAS. Values of considered ground motion parameters are given as functions of earthquake magnitude, depth and epicentral distance. The attenuation relationships were tested and calibrated using available data from large earthquakes.