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Site-specific probabilistic seismic hazard assessment for Romania and Bucharest caused by deep seismicity in Vrancea zone

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We present an overview of recent achievements in evaluation of the site-dependent seismic hazard in Romania and the capital Bucharest caused by the Vrancea focal zone (SE-Carpathians). The zone is characterised by a high rate of occurrence of large earthquakes in a narrow focal zone at depths between 60 km and km. The used database includes characteristics of seismicity, ground-motion attenuation models (Fourier amplitude spectra), and site-dependent amplification functions. Ground-motion characteristics evaluation was based on empirical strong-motion database collected recently in Romania. Site amplification functions were estimated using two so-called ”non-reference” techniques (Lermo and Chavez-Garcia 1994; Sokolov et al 2000). The data provides a basis for seismic hazard assessment in terms of Peak Ground Acceleration, Peak Spectral Acceleration and seismic intensity using Fourier amplitude spectra. It has been shown that the influence of geological factors (large geological structures and local site conditions) plays a very important role in the distribution of earthquake ground-motion parameters along the territory of Romania.