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Source time function, scaling and calibration for Vrancea (Romania) subcrustal earthquakes

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A large amount of new and high-quality earthquake data have been recently obtained through the progress of seismic networks on the Romanian territory within the co-operation programme with the University of Karlsruhe (Germany): Collaborative Research Centre 461 programme (Bonjer et al., 2000) and temporary experiments, such as tomography experiment CALIXTO'99 (Wenzel et al., 1999) and urban seismology experiment URS (Ritter et al., 2005). The main purpose of the present work is to retrieve seismic source parameters, scaling and calibration relations for the earthquakes generated in the Vrancea subducting slab on the basis of these new data. Spectral ratios and empirical Green's function deconvolution methods are applied for a set of 150 earthquakes with magnitudes $2.9 \leq M_w \leq 7.1$, occurred between 1986 and 2005. The two relative methods are applied to pairs of collocated events and similar focal mechanism, in order to inspect the source and scaling properties over the seismic active depth domain (60-180 km). The results are discussed in connection with previous studies and new modeling aspects related to the particular geodynamics in the South-Eastern Carpathian area.