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Source characteristics of the crustal moderate earthquakes occurred between 2007 and 2011, in the South Carpathians and Romanian Plain

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Study events belong to three seismogenic zones in the South Carpathians area: Ramnicu Sarat – 2 sequences on November 29, 2007 (main shock, 45.62oN, 27.22oE, h=19 km, M = 3.9) and December 6, 2009 (main shock, 45.39oN, 26.98oE, h=25 km, M = 4.2); Vrincioaia – one sequence on September 6, 2008 in (main shock, 45.80oN, 26.51oE, h=13 km, M = 4.4); Fagaras – one sequence on March 30, 2008 (main shock, 45.29oN, 24.82oE, h=2 km, M = 3.3) and one seismogenic zone in the Romanian Plain: Bucharest-Giurgiu - one sequence on June 20, 2009 (main shock, 44.17oN, 25.72oE, h=15 km, M = 3.9). The purpose of the present paper is to apply empirical Green's functions and spectral ratios techniques to determine the source parameters of the study crustal earthquakes. In all cases, for the main shocks we found well-recorded aftershocks with similar location and focal mechanism (empirical Green's functions). The difference of about 1.0 magnitude unit between the main shock and the largest aftershock is typical for the aftershock activity in the crustal domain and allows us to use the empirical Green's function deconvolution and spectral ratios techniques. Despite the relative small size of the events, high-quality waveforms for pairs of co-located events are available in different sites. The new results, together with previous determinations provide an useful database to investigate the source scaling properties in correlation with seismotectonic modelling.