



URS - URban Seismology in Bucharest, Romania

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Bucharest, the capital of Romania with about 2.5 million inhabitants, is frequently struck by intense and damaging earthquakes lastly in 1940, 1977, 1986 and 1990. Within the framework of the Collaborative Research Centre (CRC 461) "Strong Earthquakes - a Challenge for Geosciences and Civil Engineering" at the University of Karlsruhe, a seismological experiment was conducted in Bucharest in co-operation with the Romanian National Institute for Earth Physics (NIEP). The Karlsruhe BroadBand Array (KABBA) with its 32 mobile broadband stations was installed in the city centre and the periphery of Bucharest between the end of October 2003 and the beginning of August 2004 (Seis. Res. Lett., 76, 573-579). The aims of the project were on one hand the recording of local, regional and teleseismic earthquakes and on the other hand the continuous acquisition of urban seismic signals ("noise").

The analysis of the regional intermediate-depth Vrancea earthquakes helps to verify and extend the existing shakemap activities in Bucharest, which were developed within the CRC 461 and NIEP co-operation. Our results allow a more detailed mapping of amplitude amplification factors within the city area. To study the seismic structure underneath Bucharest we determine receiver functions from Vrancea and teleseismic earthquakes as well as dispersion curves of surface waves. Seismic amplitudes are studied over a wide range of frequencies to recover site effects. The coda of Vrancea earthquakes is analysed with array techniques to obtain detailed information on the wave propagation properties underneath Bucharest for the Vrancea earthquakes.