



## **Estimation of the local response using Nakamura's method for Bucharest area**

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Bucharest is one of the most affected cities by earthquakes in Europe. Situated at 150 – 170 km distance from Vrancea epicentral zone, Bucharest has suffered many damages due to high energy Vrancea intermediate-depth earthquakes. For example, the 4 March 1977 event produced the collapse of 32 buildings with 8-12 levels, while more than 150 old buildings with 6-9 levels were seriously damaged. The studies done after this earthquake had shown the importance of the surface geological structure upon ground motion parameters. *Bonjer et al. (1999)* used for estimation of the local response the seismic noise recorded at 16 stations in Bucharest. The results showed that the H/V spectral ratios obtained for the 16 sites are dominated by a clear resonance peak between 1 and 2 seconds and their amplitudes remain constant around the value of 2.

Our purpose is to extend the *Bonjer et al. (1999)* study using new data acquired in 2002 on 20 sites in Bucharest. The measurements were done with a K2 digital station equipped with a velocity sensor having the natural period of 5 seconds. For computation of the spectral ratios using Nakamura's method (1989) the JSESAME software developed within the European project SESAME (<http://sesame-fp5.obs.ujf-grenoble.fr>) was used. The obtained ratios confirm the previous results, showing a dominant resonance in the period range of 1- 2 seconds. The average period of these maxima is 1.47 s, while the average amplitude is 2.5. Our results bring evidence of the applicability of the ambient noise measurements and their relevance for the microzonation assessment studies in Bucharest area.