



Ambient seismic noise cross-correlations at Romanian broadband stations

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In the last years the National Institute for Earth Physics (NIEP), Romania, has developed its real-time broadband seismic network. At present, NIEP operates 34 stations with both broadband velocity sensors (CMG3ESP, CMG40T, KS2000, STS2) and accelerometer sensors (2gEpi). The data are continuously recorded and transmitted to the Romanian Data Centre where Antelope 4.11 is running for acquisition and processing. The density of the stations produces 560 inter-station pairs for ambient noise cross-correlation analysis. In this study, we used seismic data recorded during a period of 12 months, between January 2009 and December 2009. A nonlinear procedure is applied to lower the influence of the earthquake-related signals and to obtain a symmetric noise cross-correlation function (for details see Cho et al., 2007). The results show good cross-correlation functions for almost all pair of stations. As the vertical components of ambient noise are cross-correlated, only the fundamental mode of the Rayleigh wave is obtained. The FTAN analysis is used to extract the group velocities from the estimated dispersive waves at periods between 6 and 30 sec. This work provides very useful data for future tomographic studies in Romania at crustal level, considering that new data from other broadband stations deployed on the Romanian territory will become available.

References: Cho, K.H., R. B. Herrmann, C. J. Ammon and K. Lee. Imaging the Upper Crust of the Korean Peninsula by Surface-Wave Tomography, *Bulletin of the Seismological Society of America* (2007) 97, 198–207.