



Background Noise of the Aldeia da Serra Region (Portugal) from a temporary broad band network

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In this study, we analyse seismic background noise to assess the effect of noise based on the detectability of a temporary network constituted by DOCTAR (Deep Ocean Test Array), who have been deployed in a period between 2011 and 2012 in Portugal mainland, and the Évora permanent seismic station. This network is constituted by 14 digital broadband stations (14 CMG-3ESP and one STS2 sensors) with a flat response between the 60 sec to 50 Hz, 24-bit and 120s to 60Hz respectively. The temporary network was operated in continuous recording mode (three-components) in a region located in the north of the region of Évora, within a radius of about 30 km around the village of Aldeia da Serra, region in which there is an important seismic activity in the context of Portugal mainland. We calculated power spectral densities of background noise for each station/component and compare them with high-noise model and low-noise model of Peterson (1993). We consider different for day and night local and for different periods of the year. Power spectral density estimates show moderate noise levels with all stations falling within the high and low bounds of Peterson (1993). Considering the results of the noise, we estimate the detection limit of each station and consequently the detectability of the network. From this information and taking in attention the events recorded during the period of DOCTAR operation we analyse the improvement promoted by this temporary network regarding the existent seismic networks to the local seismicity study.

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