



Monitoring broadband seismic noise in the Hellenic Unified Seismic Network (HUSN)

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We investigate the characteristics of the ambient seismic noise across Greece as recorded from the Hellenic Unified Seismic Network (HUSN). Power spectral densities (PSDs) are estimated at ~ 100 broadband seismic stations and ~ 40 strong motion sensors daily. Using the continuous waveform data for a 3-yr period, from 2007 to 2010, we compute the highest probability noise levels at all stations of HUSN, and consequently, a low noise model for Greece. This model is a realistic low noise threshold for future seismic station installations. We also observe a very strong correlation between the microseismic noise (4-8 sec) recorded at all HUSN stations and sea wave heights recorded at buoys deployed in the Aegean and the Ionian sea. The microseismic noise produced from sea waves is evident at all stations, indicating that the HUSN seismic network also monitors sea conditions. Finally, noise monitoring of all the new strong motion stations (~ 90), that are in the process of being installed in public buildings and important archaeological places, is performed not only for network operating purposes but also for monitoring building's response to future strong motions. The application of a continuous seismic noise monitoring in both seismic and strong motion networks in Greece is necessary, as indicates the quality of the: a) sites, b) equipment and c) network management and maintenance. A complete database of PSDs may also be useful tool for investigating new research directions of seismic network applications in Greece.