



Microseismicity in the southeastern Aegean using data of the temporary EGELADOS network

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The temporary broadband EGELADOS network covered the entire Hellenic Subduction Zone from October 2005 to April 2007. Seismic events are detected and identified by an STA/LTA-trigger and a grid-search algorithm, where relative travel times of pre-defined masterevents are compared to observed differential trigger times. Because of the high seismicity, we focus on the south-eastern part of the Hellenic Subduction Zone including the forearc around Rhodes, Karpathos and Kassos and the volcanic arc around Nisyros. In addition, the considered region covers the transition zone from the Aegean to the Anatolian microplates at the west coast of Turkey. For this region more than 1800 of the 2646 events, triggered during the first 6 months of the experiment, were identified as local earthquakes and localised. The other triggers represent earthquakes outside the working region, multiply triggered events, teleseismic events or noise, respectively. Microseismicity down to a magnitude of about ML 1.8 is detected completely. In regions with an increased station density, microseismicity may be observed completely down to magnitudes of ML 1. High shallow microseismicity is observed in the forearc with clusters southeast of Crete (Ptolemy trench), south of Karpathos and southwest of Amorgos within the volcanic arc. A continuous seismically active zone strikes along the EW trending rift of the Gulf of Gökova to western Kos and changes its direction to NS by crossing the volcanic island Nisyros and extruding into the forearc near Kassos. Intermediate depth seismicity of the subducting slab is located in the volcanic arc between Astypalea and Tilos. The strong attenuation of the S-waves of intermediate depth events points to low Q in the mantle wedge above the subducting African lithosphere. In contrast, S-waves propagating within the slab from the source to the stations in the forearc are much less attenuated.