



Ambient noise tomography of the western Corinth Rift, Greece

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The Corinth Rift separates Peloponnesus to the south from main-land Greece to the north. It is one of the most active extensional intra-continental rifts in the world, with geodetically measured rates of extension varying from ~ 5 mm/yr at the eastern part to ~ 15 mm/yr at the western part. This work presents a first attempt to study the crustal velocity structure of the western Corinth Rift using ambient noise recordings. We used 3 yrs (01/2012-12/2014) of continuous waveform data recorded at 24 stations from the Corinth Rift Laboratory (CRL) and the Hellenic Unified Seismological Network (HUSN). All available vertical component time-series were cross-correlated to extract Rayleigh wave Green's functions. Group velocity dispersion curves between 0.5 and 7 s period were measured for each station pair by applying frequency-time analysis and then inverted to build group velocity maps of the study area. At the studied periods, the northern coast of the Corinth Rift is generally imaged as a region of elevated seismic velocities compared to the southern coast. More specifically, low velocities are observed in areas of Plio-Quaternary syn-rift sediments such as off-shore regions of the rift, the Mornos delta and a large part of the southern coast. Higher velocities are observed in pre-rift basement structures which are dominated mostly by carbonates. The preliminary results demonstrate good agreement with the major geological features of the area and agree relatively well with previous local earthquake tomography studies. This work will be the base for further investigations towards the study of the Corinth Rift structure using long time-series of ambient noise data.