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Ambient noise crustal tomography from Greece to Western Anatolia

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From the Aegean Sea to Central Anatolia the deformation pattern changes from North-South extension to East-West senestral strike-slip. Many geodetic and tectonic studies have been performed in this transition zone between the Hellenic subduction zone and the North Anatolian strike-slip fault, but the lithospheric structure remains poorly known, in particular in Western Anatolia. In this study, we analyze continuous seismic broadband data from the database of the SIMBAAD (Seismic Imaging of the Mantle in the Aegean-Anatolian Domain) temporary experiment and permanent networks to investigate the crustal structure between 10 and 40 km depth from continental Greece to Central Anatolia. We use one-year long continuous noise records to compute ambient noise cross-correlations between 7140 pairs of stations in the 0.02-0.1 Hz frequency band. We measure group velocity dispersion curves for reconstructed Rayleigh waves using a MFA (Multiple Filter Analysis) algorithm. Then we invert the dispersion curves for group velocity maps of Rayleigh wave. Lastly, these maps are used to build a 3-dimensional S-velocity model of the crust with a spatial resolution of $\tilde{1}$00km. We will propose interpretations of this S-velocity model in the framework of the structural and kinematic context of the area.