



## **Lithospheric structure in the Aegean area and Greece obtained from P and S receiver function methods**

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Combined P and S receiver functions of teleseismic events recorded by different temporary and permanent stations across Greece, Aegean and Hellenic arc demonstrate the subducting oceanic African lithosphere up to the northern Greece. The receiver function images lead to an average depth of 40 km for the subducted oceanic Moho beneath the south of Crete and western Peloponnese, which increases significantly down to the volcanic arc to a depth of 160 km. The oceanic Moho can be followed reliably further north to 220 km depth beneath northern Greece. The new information on the oceanic and continental lithosphere deduced from S receiver functions reveals clearly the lithosphere-asthenosphere boundary beneath each part of the area. This boundary is estimated about 160 km beneath mainland Greece, which presents the continental Aegean lithosphere and about 225 km under volcanic arc of the subduction zone that can be associated with the base of the subducting oceanic African lithosphere. Moreover, detailed information about the crustal thickness variation are inferred from this study. The Moho depth ranging from 24 km in the eastern part to 32 km in the western part of the island of Crete. In the central part of the island it reaches about 25 km. Beneath the Cretan Sea a thin crust of approximately 20 km is observed, which increases up to 32 km under volcanic arc, whereas in the northern Aegean Sea a crustal thickness between 23-26 km is recognized. Beneath western Greece, a significant crustal thickening resulted in a crustal thickness of 32-38 km, while the estimations in the eastern part of western Greece and in the northern Greece show a crustal thickness of 27-32 km.