



Creating a Moho depth model for the broader Aegean area using results from various geophysical studies: Problems and implications for active tectonics

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The main target of the present study is to image the variation of the Moho depth discontinuity at the broader Aegean area using all the results that have been obtained from different geophysical data sets and that are available for the study area. As the Aegean area is characterized by a complex geotectonic setting, many local and regional studies have been performed using different types of geophysical data and methodologies. The results that can be obtained from a large number of studies of the last 3-4 decades include deep seismic soundings, various exploration geophysical surveys (mainly gravity), travel time tomography of P and S waves, surface wave dispersion studies and (more recently) receiver function analysis. The previous information has been used in order to create a database of the Moho depth discontinuity, as well as of the corresponding uncertainties for the broader studied area. This database has been used in order to evaluate the variability of the Moho depth results from different methods, which has been found to locally exceed a Moho-depth variation of 5km. Such bias between different data sets strongly depends on the quality and the type of the original geophysical data, as well as on the scale (local-regional) of the study from which Moho depth information is extracted.

The preliminary results verify the existence of a very large contrast of the observed crustal thickness between the continental Greece and the Aegean Sea, with a significant thinning of the crust of the order of 20km for the Southern Aegean Sea, while the largest part of the Aegean Sea is characterized by a crustal thickness of the order of 25 km. Furthermore, the crustal structure exhibits a clear correlation with small-scale tectonic and geomorphological features, with significant thinning under basins and

detachment fault areas, while thicker crust is usually found under more or less stable continental areas. The spatial variation of the uncertainties of the crustal thickness is also presented for the final Moho depth map.