



A detailed receiver function study of the crust and upper mantle across the Dead Sea Transform

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We report on a receiver function study of the crust and upper mantle within DESERT, a multidisciplinary geophysical project to study the lithosphere across the Dead Sea Transform (DST). A temporary seismic network was operated on both sides of the DST between April 2000 and June 2001. The Moho depth increases smoothly from about 30 to 34-38 km towards the east across the DST, with significant north-south variations east of the DST. These Moho depth estimates from receiver functions are consistent with results from steep and wide angle controlled source techniques. Steep angle reflections and receiver functions reveal an additional discontinuity in the lower crust, however only east of the DST. This leads to the conclusion that the internal crustal structure east and west of the DST is different. The P-to-S converted phases from both discontinuities at 410 and 660 km are delayed by 2 s with respect to IASP91 global reference model. This would indicate that the transition zone is consistent with the global average, but the upper mantle above 410 km is 3-4% slower than the standard earth model.