



Lithospheric thickness beneath the Dabie Shan, central eastern China from S receiver functions

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S receiver functions obtained from data of 34 broadband stations in east central China could provide a detailed image of the crust-mantle boundary as well as lithosphere-asthenosphere boundary in the Dabie Shan and its adjacent areas. Major S-to-P converted waves produced at lithosphere-asthenosphere boundary showed a relative thin lithosphere beneath the Dabie Shan orogen, which was formed by the Triassic subduction of the northern edge of the Yangtze craton beneath the Sino-Korean craton before or during the collision process. Based on our results, a thicker lithosphere was observed beneath the southern part of the area with a maximum thickness of 72 km beneath the eastern part of the Xishui block, whereas further north beneath the North-China platform located in the Sino-Korean craton, the lithosphere is about 60 km deep. This difference is in a good agreement with the probable boundary between the Yangtze craton in the south and the Sino-Korean craton in the north. Obtained S receiver functions reveal also the maximum depth of the Moho beneath the Dabie Shan orogen at the depth of approximately 37 km. Our study shows also a very strong correlation between P and S receiver functions for relatively simple crustal structures. Calculated P receiver functions from the same stations confirm the existence of a thin lithosphere, although with P receiver functions alone it would not be possible to distinguish the observed phase from crustal multiples.