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Earth's Crust of Bulgaria by P Receiver Functions

Receiver function technique is applied to evaluate the Moho depth and Vp/Vs ratio on the territory of Bulgaria. Bulgarian National Seismological Network (BNSN) is equipped with broad-band seismometers and digital acquisition systems. It enables application of modern techniques of analysis of the velocity structure in Bulgaria. The method was applied to eleven stations of BNSN.
The obtained results show that the Moho depth varies between 30 and 50 km. The crust is shallower in Northeast of Bulgaria and goes deeper in Southwest direction. The crust is thicker in the Rhodopes massif, where it reaches more than 50 km beneath the station Musomishte (MMB). A thick sedimentary layer was also delineated in the Northern Bulgaria. The crustal structure in Southwestern Bulgaria especially beneath the station Vitosha (VTS) is very complex. Further more detailed analysis of data should be performed in order to better estimate the depth of the Mohorovicic discontinuity. The Vp/Vs ratio in the study area varies between 1.60 and 1.90. It varies between 1.80 and 1.90 in Northern Bulgaria and decreases in South and Southwest direction. The western part of Rhodopes massif is characterized by low Vp/VS (1.6-1.65) and could be explained with presence of felsic rock formation.

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