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Crustal structure beneath the Sudetes from SUDETES 2003 seismic experiment - profiles S02, S03 and S06

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SUDETES 2003 is latest of a series of large 3-D seismic refraction experiments in Central Europe. It fills the gap between the regions covered by the previous experiments POLONAISE'97, CELEBRATION 2000 and ALP 2002. Specifically, SUDETES 2003 covered mainly the northern part of the Bohemian Massif which is the easternmost outcropping part of the Late Palaeozoic Variscan Orogen in Europe, and some of the neighboring Polish basin to the northeast, and the West Carpathians to the east. This presentation shows the first interpretation of gathered data in one of the most interesting part that covers the transition zone between Palaeozoic Platform and Bohemian Massif. Two profiles S02 and S03, both about 400 km long, spread in Czech Republic and Poland crossing Sudetes Mountains. Additional profile S06 crosses both S02 and S03 profiles in the north. This geometry assure very good interpretational possibilities. We present 2-D models of the crustal structure based on tomographic and ray-tracing techniques. In the tomographic interpretations for all three profiles we used first arrivals and joint refracted and reflected waves traveltimes inversions. Crustal thickness is changing from 34-36 km beneath Bohemian Massif in the south to 30-34 km beneath Palaeozoic Platform in the north. Within the Palaeozoic Platform beneath profile S02 high velocity lower crust was found (Vp $\sim$ 7.6 km/s). In the lower lithosphere beneath Sudetes Mountains two seismic reflectors at depths 55-60 and 65-70 km were found. We compare our results with previous seismic investigation in this area using deep seismic sounding and receiver function techniques. This complete interpretation is very good starting point for further 3-D seismic interpretations and other geophysical investigations (e. g., potential fields).

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