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3D earth's crust model beneath south-western Poland and Sudetes Mountains

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SUDETES 2003 was the fourth from the series of big seismic experiments performed in Central Europe. This presentation shows complete three dimensional interpretation of the area covered by this experiment the transition zone between Palaeozoik Platform and Bohemian Massive. All data from SUDETES 2003 experiment recorded along profiles and fan records in this area were used together with existing observations from previous experiments POLONAISE'97 and CELEBRATION 2000. The huge data set of refracted and reflected waves travel times was inverted using modern seismic tomography inversion technique applied in JIVE3D package. This method allows separate inversion for boundary depths and velocity in layers producing detailed description of the structure. We present also a detailed analysis of uncertainty for both boundaries and velocities. Comparing with surface geology we can identify some of geological structures like TESZ, Carpathian front, Moldanubian, Teplo Barandian and Sudetes blocks and the boundaries of terranes. The topmost basement has in general a velocity of 5.8-6.0 km/s, and velocities at ca. 20 km depth are about 6.2 km/s. The strong reflecting boundaries were found at 20-23 km and 25-28 km depth. The Moho was found at 29-32 km beneath Palaeozoic Platform and slightly deeper (33-35 km) at the Bohemian Massif. Velocities beneath Moho are relatively low, of 7.95 km/s. This 3D model is a good starting point for gravimetric interpretation.