



A new model of upper mantle structure beneath Polish part of the Precambrian East European Craton

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The upper mantle structure is a subject of many publications and there exist some theoretical models which try to represent global structure. Nevertheless there are very often too general to show the local variations of the structure. We present a preliminary seismic model of the upper mantle structure beneath Suwalki (SUW) on the basis of the P-wave traveltimes analysis. SUW is a seismic station belonging to the Polish Seismological Network (PLSN) situated in NE part of Poland on the Eastern European Craton. The data from over 200 natural seismic events were divided into four groups referring to the epicenters in the Western Mediterranean Sea region, Greece region, Caucasus region and rift on North from Iceland with Jan Mayen region. We created four seismic sections for every area, respectively. Our analysis is based on the character of traveltimes up to 3000 km. For each one we established one model which is fitted to all these sections. For all regions except Jan Mayen, 1D model was calculated. For Jan Mayen region we had to estimate 2D model because of different structure beneath the Norwegian Sea and the continental part of Europe. The continental part of the model is the same as in other regions. Our model of the upper mantle beneath SUW station documents low velocity zone (LVZ), 300-km discontinuity and zone with the reduction of P-wave velocity around 410-km discontinuity. All these results are compared with the TOR experiment ones and other data.

In the interpretation of seismic results we refer to the paleotectonic interaction between Laurentia, Baltica and Avalonia during the closure of the Tornquist Sea.