

European plate crust and new digital Moho depth map

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The complicated history of the European plate is reflected in the present day structure, particularly in the continental and regional scales of the Earth's crust. From the early 1970s, many crustal models have been produced for different regions in Europe. The integration of models derived from recent active and passive seismic experiments should allow the construction of maps with rather high resolution (1° or better) in many areas of Europe. In view of the quantity of high resolution data and models now available, particularly seismic models, it is an appropriate time to bring them together and produce new integrated map of the Moho depth for European plate. In fact this is the first digital, high resolution map of the Moho depth for European plate understand as an area from Ural Mountains in the east to mid-Atlantic ridge in the west, and Mediterranean Sea in the south to Spitsbergen and Barents Sea in Arctic in the north. The data set used in this paper to constrain Moho depth map contains together more than 250 files with data for individual seismic profiles, 3D models obtained by body and surface waves, receiver function, and maps of seismic and/or gravity data compilations.

Although presented here Moho depth map is a compilation of existing and published data it has some advantages in relation to previous maps: (1) contains all recent/modern results on the crustal structure, mostly high quality seismic results; (2) covers much larger area than previous maps of Europe; (3) is consistent and available in digital form. It makes an opportunity to comment European plate Moho depth map in terms of geology and tectonics our continent.

In general three large domains within European plate crust are visible. The oldest Archean and Proterozoic crust of thickness 40-60 km, continental Variscan and Alpine crust of thickness 25-35 km, and the youngest oceanic Atlantic crust of thickness 10-20 km.

Map describes the current knowledge of the overall structure of the Moho and will be available at www pages of University of Helsinki and University of Warsaw as a figure (tiff, pdf, eps and jpg formats), as well as in digital form as ASCII file with longitude, latitude and Moho depth, each 0.1 degree. The map is available at:

<http://www.igf.fuw.edu.pl/mohomap2007/> and <http://www.seismo.helsinki.fi/mohomap/>

Please, send any comments or questions about the map to:

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New additions to future upgrades of the Moho map are welcome.

Reference

Grad M., Tiira T., ESC Working Group, 2009. The Moho depth map of the European Plate, *Geophysical Journal International*, **176**, 279-292, doi: 10.1111/j.1365-246X.2008.03919.x.