

WORKSHOP
NEMO - NumERical MOdelling using high performance computing
infrastructures

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Solid Earth Dynamics Department,
Institute of Geodynamics of the Romanian Academy, Romania.
Jean-Louis Calderon str. 19-21 nr. sector 2, Bucharest

1) PRESENTATION TITLE:

THE CARPATHIAN CONDUCTIVITY ANOMALY AND ITS GEODYNAMIC
IMPLICATION REFLECTED BY 2-D MAGNETOTELLURIC MODELLING

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3) ABSTRACT:

The magnetotelluric profiles crossing the Eastern and Southern Carpathians, Moesian, Scythian and East-European Platforms supplied data related to the resistivity distribution into the lithosphere and along the intraplate collisional suture zones. Basically, some lithospheric models inferred from magnetotelluric soundings results, by using a 2D forward modeling with finite element code, are discussed, in order to point out the obvious differences between the deep structures separated by CECA and its geodynamic implication in the seismic active Vrancea zone. On this way, it was possible that from a large scale of geoelectrical elements to use those characterizing the presence of various types of crust and their main rheological features. Thus, a remarkable electrical anomaly, characterized by a very strong gradient, has been detected along the Carpathians and the surrounding platforms.

All the images provided by the 2D models supply conclusive information related to the Carpathian electrical conductivity anomaly (CECA) and Trans-European Suture Zone (TESZ) emplacement and their depth evolution, as well as the relationship between the two types of lithosphere that belong to Precambrian East-European and Scythian Platforms, towards East and North-East, and Phanerozoic terranes, towards West and South-West.

As a sequence of the high structural complexity in the seismic active Vrancea zone, we had to add a previous 2D MT model (North Dobrogea), as well as a structural map at the lower crust level which confirm the TESZ placement along both the CECA and Peceneaga-Camena fault separating Precambrian Moesian crust to the South-West and Cimmerian North Dobrogea crust towards North- East.

4) POSITION OF CORRESPONDING AUTHOR:

Student	yes	no
Post-Doctoral	yes	no
Researcher	yes	no