

# **Investigation of the Trans-European Suture Zone by Means of the Electromagnetic Data.**

STANICA, D. Geological Institute of Romania, Bucharest, Romania

In order to carry out new information related to the crustal and upper mantle structure, along and nearby the Trans-European Suture Zone (TESZ), this paper presents some models derived from 2-D inversion and modelling of the magnetotelluric (MT) data.

In addition to the MT results, relevant geological and geophysical data are used to emphasize the main features of the paleosuture (subduction) zone, more or less associated to TESZ, along the Eastern Carpathians.

The images provided by the distribution of the electromagnetic parameters supply conclusive information concerning the emplacement and the resistivity values characterizing the subduction zone of the Flysh Nappes primary socles, sedimentary cover getting down smoothly from East to West, two types of contrasting basement, as well as a very strong tectonical element pointing out the relationship between these two crustal structures. As regarding the subduction zone of the eastern structure, its depth extent is coming from 16 km to 100 km, or more, in the southern part, on 20-22 km width, while the calculated resistivity ranges from 2 to 10 ohm.m.

With respect to the thickness of the crust and upper mantle, this is pointed out along more profiles crossing the TESZ.

Also, quantitative information related to the sedimentary cover are supplied and some main Flysh Nappes were separated on this way.

Finally, the electromagnetic data conduct us to some conclusions regarding the collision of the East-European and Intra-Carpathian plates, what might contribute to new hypotheses related to relationship between TESZ and the Carpathian Arc Bend.