



The main structural features of the Carpathian arc bend zone in connection with the torsion process of the seismogenic relic slab (Vrancea region)

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After revealing the torsion's existence of the relic slab in the frame of the seismic active Vrancea zone, by means of the electromagnetic data, to what extent are involved various geotectonic elements appeared as a very important problem, because this area represents an intraplate collisional zone among more geotectonic structures. This paper is to demonstrate the role played by the intraplate collisional suture and lithospheric active faults, in addition to other elements, in the trigger action of the torsion process. Therefore, more than 100 magnetotelluric soundings placed on 5 profiles crossing the Eastern Carpathians, the Moesian, East-European and Scythian Platforms were analyzed, so that conclusive information concerning the electromagnetic (EM) imaging of the seismic Vrancea zone is emphasized. The main concerns are focused on electrical conductivity distribution in an enlarged area and on the electromagnetic tomographies 2-D and 3-D at various depths, as well as the structural relation between the main lithospheric blocks. Thus, this paper will supply additional information regarding the deep image of the Vrancea zone, argued by means of interrelation among more EM parameters values and the EM tomographies. In this way, not only the lithospheric feature will be shown, but also the influence of the surrounding tectonic structures on the seismogenic volume. Some models derived from 2D inversion and forward modeling of the MT data are also presented, so that the structural particularities of the mentioned above structures, as well as the main rheological features of the various types of crust be better emphasized. Remarkable electrical anomaly, characterized by a very strong gradient and high conductivity, has been detected along the Carpathians and the south-western limit of the East European Platform. By correlating its features with the depth of the most significant resistivity limits, it is obvious

that this electrical conductivity anomaly is corresponding to the suture between two types of lithosphere. The final results are to conclude that the actual stage as well as directional changes of the collisional process in the Carpathian arc bend zone may be preserved in the magnetotelluric images.