



A Seismo-tectonic Information System for monitoring the tectonic variations in the Carpathian Bend

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The SE-Carpathians is a geodynamically active region due to the ongoing subduction processes. In the interior part of the SE-Carpathians, in the vicinity of the Ciomadul volcano there is post-volcanic activity which is indicated by mofettes and a partially melted body under the volcano (measured by magnetotelluric methods). In the exterior part of the Carpathian Bend there is considerable seismic activity possibly caused by the slab detachment. This area is called the Vrancea-zone.

The authors have embarked on building a geoinformatic system to study the surface deformations and their relation to the tectonic processes in the Carpathian Bend. Various types of data have been collected, e.g. seismological data (focal depths, focal mechanism solutions and stress data derived from focal mechanisms), InSAR-data (estimated vertical- and east-westward motion velocities from the archive ENVISAT and recent Sentinel-1A images), tectonic maps and other thematic maps (e.g. a digital elevation model). These data were illustrated and analysed using Quantum GIS.

This geoinformation system plays an important role in the interdisciplinary interpretation of the complex tectonic situation in the SE-Carpathians. It may also yield a significant contribution to a more precise understanding of the nature and the stage of the present subduction. Moreover, it can help in assessing the seismic- and geo-hazard in this part of Romania.