



Electrical resistivity tomography evidence of structural anisotropy and long-term macro scale gravity processes in threshold of Beskid Niski (edge zone of Magura Wątkowska ridge, Polish Flysch Carpathians)

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The Beskid Niski is the lowest mountain region in the Carpathian flysch belt. Low altitudes of passes and ridges in this region until now have been identified mainly as a result of differences in resistance of bedrock, not with long-term superficial evidences of tectonic activity. Contemporary morphotectonic analysis taking into account spatial orientation of cracks and faults surfaces (contour and directional rose diagrams) and electrical resistivity measurements (electrical resistivity tomography profiles) indicates the variety of macro scale movements in edge zone of research area, leading to fragmentation morphological threshold of Beskid Niski (eg. islands ridges, double ridges, ridge-top trenches). A particularly interesting area is the edge zone of Magura Wątkowska with complicated geological structure - tectonic contact of Magura Unit and Silesian Unit (Central Carpathian Depression). During the field survey, about 7000 measurements of the spatial orientation of rock discontinuities were performed, at about 100 measuring positions (most representative were selected). The results of the measurements are presented as contour and directional rose diagrams. Directional rose diagrams and contour diagrams were supplemented by the strata orientation and the classification of the joint sets regional names. After preliminary verification for further study classified those that allowed the evidence of long-term macro scale gravity processes. The morphometric analysis conducted using the Digital Terrain Model, allowed to choose three areas to carry out the electrical resistivity tomography. A total of four electrical resistivity profiles of 600-1200 meters in length and a depth of 80-120 meters were made. Electrical resistivity tomography evidence was correlated with morphotectonic measurement (cracks sets and system). Results allowed to reinterpret the impact of geological structure on landscape relief and enabled to characterize the various type of long-term macro scale gravity processes (basin type or DSGSD).