

Fault Tectonics of the Carpathian Foredeep

By

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The purpose of my research is integrated structural geological, geohistory, and geomorphological studies in order to address some unsolved questions: (1) the time of the formation of faults of the basement of the Ukrainian Carpathian foredeep; (2) relationship between faults in the basement to those in the foredeep; (3) history of fault dynamics; and (4) the influence of faults on the morphology of the area.

The Ukrainian foredeep is subdivided into two longitudinal units: Outer and Inner units. The Inner unit is composed of two subunits: Boryslav-Pokutie and Sambir, both of them being built by the folded Lower to Middle Miocene deposits. Miocene deposits of the Inner zone of the foredeep are overthrust by the Outer Carpathian nappes. The Inner zone, in turn, is overthrust onto the unfolded Miocene deposits of the Outer zone.

Kinematic data will be sampled along three profiles crossing Outer Carpathians and the Inner and Outer zones of the foredeep, as well as the slope of the platform. Slickensides, including striations, small faults, folds, and joints will be measured, photographed, and plotted. These data will be used for paleostress analysis.

For detailed growth history of the faults of the Outer zone and its basement, I plan to use subsidence analysis.

In order to address the question of the influence of faulting on geomorphic features, the following techniques are expected to be used: (1) analysis of lineaments; (2) analysis of geophysical data; (3) integrated analysis of geodetic data; (4) analysis of the topographic lineaments; (5) maps of trends of topographic parameters.