NEW INSIGHTS ON POST OLIGOCENE TECTONICS IN THE CENTRAL EAST CARPATHIANS (NORTH ROMANIA)

M. Marin(1), M. Tischler(2), H. Gröger(2), S.M. Schmid(2), B. Fügenschuh(2)

(1) University of Bucharest Faculty of Geology and Geophysics, (1) Department of Earth Sciences, Basel University. mihaimarin1975@yahoo.com

The Romanian segment of the Carpathians is a highly arcuate orogenic belt formed in response to subduction and continental collision between the European and Apulian plates and related microplates during the Alpine orogeny. On the NW-most Romanian Carpathians tip, investigation of the Pieninic nappe emplacement and the subsequent uplift history add considerable value to the understanding of the post-Oligocene tectonic history and topography emplacement of the central East Carpathians.

We have combined depth data with kinematic field observations along large-scale structural elements in the Pienidic (senso largo) and Bucovinian systems, in order to derive both the evolution of the nappes emplacement during shortening and the large scale strike-slip motions associate with continental collision.

In Burdigalian times the Pienidic flysch nappes were emplaced with NW-SE directed thrusting, leading to the formation of a foredeep basin in the northern part of the Transilvanian basin, as demonstrated by the geometry and internal structure of the coevally deposited clastic sediments. The clastic wedge is build up by Upper Oligocene to Burdigalian sediments flexurally developed in direct response to the load generated by the successive thrust emplacement. Analysis of the seismic data reveal three stages of tilting of the sedimentary wedge, related with successive emplacement of the Pieninic nappes.

In the Middle to Late Miocene, the Pieninic nappes contacts were offset by the EÚW trending Bogdan Voda fault and its eastern continuation, the Dragos-Voda fault system. This Kinematic data derived from mesoscale faults indicate sinistral strike-slip displacement, in good agreement with kinematics inferred from map view. Activity along this sinistral strike slip system is mostly coeval with the continental
collision of the Carpathians with the European foreland, leading to variations in uplift/topography generation along the orogenic arc, accommodating differences in shortening along the orogenic belt.