



Evolution of Focsani Basin: a sedimentological point of view

C.E. Panaiotu (1), I. Vasiliev (2), C.G. Panaiotu (1), B. Matei-Soare (1), C. Langereis (2), W. Krijgsman

(1) Bucharest University, Romania, (2) Utrecht University, The Netherlands

The Romanian Carpathians form a fold-and-thrust belt which has been thrust over the foreland since the Late Badenian. Especially the East Carpathians have been interpreted as a double-vergent wedge, tectonically active until the Pliocene when they turn to almost inactive state. Exhumation of the main parts of East Carpathians began at the end of the Middle Miocene, while in the bending area it started only at the beginning of Pliocene. A foredeep basin formed during Middle Miocene to Pliocene in front of the East Carpathians, reaching anomalous thickness (13km) in front of the bending area (Focsani Basin). We studied the Upper Miocene to Pliocene sedimentary deposits of the Focsani Basin outcropping along two thick and continuous river sections of Putna (2.5 km) and Ramnicu Sarat (7.5 km) with the aim to decipher the controlling factors of sedimentation. Magnetostratigraphy provided the age control and pointed to a change in sedimentation rate around 6 My. Sediment provenance analyses using sandstone petrography, geochemistry and clay minerals distribution show a switch in the main source area for the clastic material of the Focsani Basin from an active volcanic arc up to about 6 My towards an uplifting orogenic belt composed of metamorphic and sedimentary deposits after 6 My. Though volcanism in the East Carpathians continued also after 6 My, it seems that Cretaceous and Paleogene nappes have been suddenly uplifted, interrupting the previously direct communication between Focsani Basin and the volcanic arc and so, changing the sediment composition provided to the basin. Auxiliary sources (mainly clastic carbonates) derived from East European Platform or from East Moesian Platform (Dobrogea) are also possible especially for the Sarmatian deposits. Sedimentological logging demonstrates that large and thick deltaic fans mainly fed from NW by alluvial systems filled the basin and kept pace with subsidence until late Pliocene (Romanian) when basin became overfilled. This balance

between sedimentation and subsidence over the entire Pliocene suggest a continuous loading of an elastic plate.