



Early Mesozoic evolution of Northern Dobrogea (Romania)

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Northern Dobrogea is a deformed area between the Moesian micro-plate and the East European Platform at the southeastern edge of the trans-European suture zone (or also the Teisseyre-Tornquist zone). Its early Mesozoic evolution is not well understood, especially the history of displacement of Moesia along its southern border, the NW-SE trending Peceneaga-Camena major fault zone. A field study in Northern Dobrogea (Romania) allowed us to collect some hundreds of tectonic data as fold and fault measurements including fault slip data in order to reconstruct early Mesozoic paleostress fields. In addition, comprehensive sampling of sedimentary rocks will give us new sedimentological data on the Triassic to Jurassic succession. During the Lower Triassic sediments rest unconformably on Palaeozoic basement and record the transition from a continental to a shallow-marine depositional setting. These clastics grade upwards into the carbonates of the Somova Fm which comprise calcareous turbidites. Overlying these are the Anisian-Ladinian carbonate facies which are more nodular in character. These are then overlain by the late Ladinian to Norian marls of the Cataloi Fm. From a tectonic point of view, in Triassic times the Northern Dobrogea rift developed in a transtensional regime under which the Peceneaga-Camena fault could have displayed a right-lateral motion. Extension has led to the extrusion of MORB during the Middle Triassic. Beginning in the late Carnian, coarse-grained turbidites of the Alba Fm were shed into the Cataloi Basin from western sources. By Rhetian times and throughout the Early and Middle Jurassic, sedimentation in the axial parts of the North Dobrogea Basin was dominated by terrigenous turbiditic clastics. Within the Nalbant Fm are a series of Middle Jurassic coarser clastic units, which are possible channel complexes equivalent in form and structure to the Ainsa channel complex (Pyrenees).

The occurrence of an Eo-Cimmerian phase of shortening in Northern Dobrogea has been mainly based on a slight unconformity between Triassic and Jurassic strata. This unconformity is likely due to the deepening of the basin, probably associated with the post-rift phase of basin evolution and its thermal subsidence. The tectonic inversion has clearly affected the whole succession up to Middle Jurassic (and Late Jurassic according to the literature) and then corresponds to the Neo-Cimmerian tectonic event. The processing of tectonic data will constrain the stress regime (transpressional, or not, along the main boundary fault zones) under which the inversion of the basin occurred and to deduce the movement of Moesia relative to Eastern Europe.