

Miocene climate variations in the Moesian Platform sediments based on sedimentology and biomarkers

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During the Miocene the Moesian Platform (southern Romania and northern Bulgaria) had a complicated flexural behavior due to the mobility of the nearby orogens. The different behavior induced varying sediment charges, sediment distribution and sediment types. The northern part of the study area (on which the Dacian Basin is overlaid) is characterized by siliciclastic units with dominantly deep facieses, while the southern part is characterized by carbonate production in shallower basin waters. Since the Miocene, the Dacian and Black Sea basins have been highly sensitive to fluctuations in the hydrological cycle. To establish the dynamic evolution of the basin and the climate variations during the Miocene, we have sampled both northern and southern margins of the basin. To discriminate between the tectonic imprint and the eustatic influence over the sedimentation rate we have chosen a multidisciplinary approach including sedimentology, tectonics and organic geochemistry based reconstructions. The sedimentary succession is interrupted by few unconformities correspondent with the main phases of orogeny (in the Carpathian Foredeep) while the southern part seems to have been exposed more often expressed in the geological record by a higher number of unconformities and paleo-soils levels. The n-alkanes distribution recovered from the lipids extracted from the sedimentary rocks indicates a mixture of terrestrial and marine input in the northern, Romanian, closer to Carpathians, part of the Dacian Basin. Surprisingly, the southern, Bulgarian side, showed a more predominant terrestrial input (with higher contribution of the long chain n-alkanes) at least for the Sarmatian (around 10 Ma). The estimated paleotemperatures based on branched GDGT's indicate much warmer conditions than present day, up to a value of 20 C mean annual temperatures. We will further investigate the paleoenvironmental changes during the latest Miocene of the Dacian basin, using the biomarker approach on the organic biomarkers.