Hennersdorf section (Lake Pannon, Upper Miocene): use of stable isotopes on ostracods for a palaeoenvironmental reconstruction

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Lake Pannon is an ancient lake-system which developed after the vanishing of the Paratethys Sea. Its history starts about 11.6 Ma ago in correspondence to the Sarmatian/Pannonian boundary. During the initial phase the lake was characterized by a brackish and alkaline water body. The following progressive freshening of Lake Pannon's water throughout the Pannonian lead to a high endemism among the benthic fauna (Harzhauser et al. 2007).

The purpose of this study is to characterize the palaeoenvironmental changes, which occurred during the early Pannonian in Lake Pannon. In order to pursue this intent oxygen ($\delta^{18}O$) and carbon ($\delta^{13}C$) stable isotope analyses on ostracods and bulk sediments were made.

Ostracods and sediments analysed for this study come from the Hennersdorf section; one of the best-known localities of Lake Pannon's marginal area. The Hennersdorf clay pit is located about 10 km south of Vienna (Austria) and is correlated with the lower part of the Pannonian zone E ($\sim$10.5 Ma). The outcrop is made up of by about 15 meters of clays differentiated mainly by colour. The lower part is characterized by the presence of several coquina levels, whereas the upper portion is almost barren of molluscs (Harzhauser & Mandic 2004; Harzhauser et al. 2008; Danielopol et al. 2011). Ostracod specimens are present in almost the entire section.

A total of 44 samples coming from Hennersdorf section were studied. For each sample up to 5 ostracod species were analysed: *Cyprideis obesa*, *Hemicytheria* sp., *Loxoconcha granifera*, *Loxoconcha* ex gr. *rhomboidea*, *Leptocythere* sp. Only *Cyprideis obesa* is present throughout the section. For the stable isotope analyses the ostracods were carefully cleaned and stored in ethanol; no chemical pre-treatments were used. Ostracod analyses were coupled with sediment analyses (stable isotopes and sieve analysis).

Despite that the use of stable isotope analyses on ostracods is quite widespread, Lake Pannon's results do not show a unequivocally interpretable environmental pattern. The interplay of the different factors (salinity, temperature, vital effects, water influxes, etc.) and the peculiar characteristics of the lake do not permit, probably, to define the palaeoenvironment of the area only through the stable isotopes.

References

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