

## **Revealing Environmental Fluctuations on Different Scales in Lake Pannon (Lower Pannonian, Styrian Basin)**

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An extensive regression is registered in many parts of the Pannonian Basin at the Sarmatian/Pannonian boundary, which is interpreted to coincide with the global sea level fall at the Serravallian/Tortonian boundary (Ser 4/Tor 1 of HARDENBOL et al. 1998). Subsequently, the Central Paratethys turned into an isolated lake – the Lake Pannon. Beside the famous radiation of molluscs (e.g., dreissenids, lymnocardiids, melanopids), a lot of endemic ostracod species have developed in Lake Pannon, which are also used for biostratigraphical and palaeoecological approaches.

At the western edge of the Pannonian Basin System, Lower Pannonian sediments cover most of the eastern part of the Styrian Basin. One of the best-studied outcrops is the clay pit Mataschen (approx. 40 km SE Graz), where lowermost Pannonian (*Mytilopsis ornithopsis* Zone) is exposed. The ca. 30 m thick succession starts with sandy sediments with an only poor, limnic ostracod fauna (darwinulids, candonids, ilyocyprinids), which belongs to the basal Pannonian lowstand systems tract. The ostracod faunas (cytherideids, hemicytherids, loxoconchids) as well as the overlying pelites with plant- and mollusc-remains indicate a very rapid transgression of the Pannonian Lake (transgressive systems tract). Above this about 4 m thick pelitic unit an overall coarsening upward trend with pelite - fine sand alternations, topped by large-scale cross bedded sands, reflects the transition from limnic to deltaic environment (highstand systems tract). In general, this transgressive-regressive sedimentary cycle is well understood and was part of a multidisciplinary research project (Gross 2004).

Based on these results, we now focus on environmental fluctuations on different scales around the maximum flooding surface, with special emphasis on the variations within the ostracod fauna. For this purpose, beside sedimentological studies and a gamma-ray analysis of the entire section, a sediment core of half a metre length was sampled in intervals of 0.5 cm and analysed quantitatively. The gamma-ray analysis points to a distinct cyclic sedimentation of the section as a whole, first results on the ostracod distribution in the core samples suggest cyclicity on a cm-scale.

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## References

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