

The Lower–Middle Miocene transition (Karpatian–Badenian) in the Krems Embayment (Central Paratethys)

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The Krems Embayment represents the westernmost fully marine depositional environments of the Karpatian and Badenian transgressions in the Central Paratethys. Four deep drill cores were investigated to analyse the bio- and lithostratigraphic, and tectonic relations. The investigated core sections cover the Karpatian Laa Formation (bio-zones M4, NN4), and the Badenian Grund Formation (M5b–M6, NN4–NN5). Important biostratigraphic indicators identified are *Praeorbulina glomerosa glomerosa*, *Praeorbulina glomerosa circularis* and *Orbulina suturalis* for the Grund Formation. The Laa Formation is indicated by the absence of *Praeorbulina*, *Orbulina* and *Globigerina falconensis*, low numbers of *Globorotalia bykova*, and a prominent peak in *Helicosphaera ampliaperata* abundance at the end of the Karpatian. *Cibicidoides lopjanicus* and *Cassigerinella* spp. occur with high percentages in Badenian samples and show much longer stratigraphic ranges than known from literature data. The depositional gap at the Karpatian-Badenian boundary has a minimum duration of 0.41 million years in the Krems Embayment. The combination of bio- and lithostratigraphic data allows the correlation across major faults. The Diendorf Fault system played an important role during basin formation and was very active during the Early to Middle Badenian. The results of this study show the complex interaction of sedimentation, tectonic activity and paleo-biological developments in this peripheral part of a marginal sea.