

## Early Late Cretaceous sea-level changes: new insights from Cenomanian-Turonian successions around the Mid-European Island

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During the early Late Cretaceous, a substantial global sea-level rise flooded vast continental areas, creating extensive shelf seas all across the globe. The course of this early Late Cretaceous transgression is reflected by the stratigraphic patterns in the basins surrounding the Mid-European Island (MEI; e.g., JANETSCHKE et al., 2015). Based on an integrated study and sequence stratigraphic correlation of well-dated sections in these basins, the patterns of early Late Cretaceous sea-level changes have been elucidated and the focus will be on new unpublished results.

The early Late Cretaceous transgression can be subdivided into two superordinate transgressive-regressive (T/R) cycles composed of stacked, unconformity-bounded depositional sequences. The first T/R cycle commenced in the earliest Cenomanian and was characterized by a prolonged transgression phase culminating in an earliest Turonian maximum flooding interval. The five sequences of this transgressive hemicycle are retrogradationally stacked and the major part of the stratigraphic onlap patterns observed at various places around the MEI formed during this interval (e.g., NIEBUHR et al., 2014). The progradational hemicycle was relatively short and comprises the early Turonian when accommodation was rapidly filled by prograding coastal facies (e.g., RICHARDT et al., 2013). A conspicuous unconformity in the lower–middle Turonian boundary interval delineates the first from the second T/R cycle (e.g., WILMSEN et al., 2014) that started with a significant transgression in the early middle Turonian. Maximum flooding was during the late middle Turonian, and a major mid-late Turonian sea-level fall ended the second T/R cycle, consisting of three depositional sequences. The integrated dating of newly cored sections at the southern margin of the Münsterland Cretaceous Basin resulted in a detailed correlation of proximal and distal facies zones, a better understanding of the sequence stratigraphic dynamics in the basin and a revised dating of glauconitic marker beds. The following T/R cycle likewise started with a major late Turonian transgression but the onset/acceleration of basin inversion in central Europe during the latest Turonian to Coniacian complicates sequence stratigraphic analyses of post-Turonian successions. However, this study provides strong evidence for the predominant eustatic control on Cenomanian–Turonian stratigraphic architectures in Central Europe.

JANETSCHKE, N. et al., 2015. *Cretac. Res.*, **56**, 530–549.

NIEBUHR, B. et al., 2014. *Z. dt. Ges. Geowiss.*, **165**, 621–640.

RICHARDT, N. et al., 2013. *Facies*, **59**, 803–827.

WILMSEN, M. et al., 2014. *Z. dt. Ges. Geowiss.*, **165**, 641–654.