

## The discontinuous Lower Cretaceous of Northeast Germany: Late Cimmerian Unconformity or Early Cretaceous pre-inversion?

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In Northeast Germany, the disconformable contact between the Cretaceous base and the truncated Jurassic top is referred to as Late Cimmerian Unconformity (ZIEGLER, 1990). Above this unconformity, Lower Cretaceous successions are discontinuous followed by mainly continuous Upper Cretaceous successions. Wealden type sediments (Bückeberg Group) of up to 360 m thickness are only present in narrow ENE-WSW to NE-SW oriented, isolated grabens at the Darß and the islands of Rügen and Usedom. Facies analysis of these successions revealed wetlands of a wide-spread delta plain; a marine influence up to Usedom is testified by marine phytoplankton. Based on palynology, these Wealden type sediments can be correlated with the Wealden A-E of Southwest Mecklenburg dated to the Berriasian (DÖRING et al., 1969). With a sharp and disconformable base, up to 15 m thick carboniferous to glauconitic shaly sandstones of clastic shelf environments follow. These transgressive sediments are dated to the Upper Hauterivian based on marine micro- and macrofauna. In contrast to the Berriasian and Upper Hauterivian successions, which are only present in grabens, up to 60 m thick whitish to reddish marls of carbonate shelf environments dated to the Aptian to Albian occur widespread in Northeast Germany. The Aptian to Albian succession disconformably follows Upper Hauterivian sandstones in the grabens, but forms the Cretaceous base outside the grabens. With a sharp and disconformable base, the Upper Cretaceous occurs widespread in Northeast Germany. Upper Cretaceous successions are between 150 m (Darß) and 1.100 m thick (NE of Rügen) and predominantly formed of pelagic limestones, chalks and chalky marls.

Sedimentology, stratigraphy and structural geology of the discontinuous Lower Cretaceous in Northeast Germany points to: (1) The Berriasian and Upper Hauterivian successions, today only present in grabens, represent remnants of a wide-spread sedimentary cover. (2) Thus, the graben fills were part of a larger sedimentary basin, most probably the North Sea Basin. They do not represent isolated smaller basins as previously assumed (VOIGT et al., 2008). (3) Syn- to post-sedimentary graben formation prevented the Berriasian and Upper Hauterivian successions from erosion. (4) Outside the grabens, more than 400 m of Berriasian to Barremian sediments were eroded. (5) So far, a pre-Hauterivian phase and pre-Aptian phase of graben formation and wide-spread erosion are identified. (6) These phases represent either descendant phases of the Late Cimmerian Unconformity or ascendant phases of the Late Cretaceous inversion, herein referred to as Early Cretaceous pre-inversion.

DÖRING, H. et al., 1969. Jahrbuch für Geologie, **5/6**, 711–783.

VOIGT, S. et al., 2008. In: MCCANN, T. (Ed.), The Geology of Central Europe – Volume **2**: Mesozoic and Cenozoic, 923–995.

ZIEGLER, P., 1990, Geological Atlas of Western and Central Europe, Band 1, Shell Internationale Petroleum, p. 239.