High-resolution calcareous nannofossil biostratigraphy for the Lower Cretaceous (Berriasian - Aptian) of the Lower Saxony Basin

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Lower Cretaceous sediments forming the basinal facies of the Lower Saxony Basin in Northern Germany consist predominantly of monotonous clays and clayey marls. These fine grained sediments usually provide a moderately to well preserved calcareous nannoflora. Here we studied uppermost Berriasian to lower Aptian sediments comprising the following key events: (a) the Valanginian "Weissert Event", (b) the early Barremian "Hauptblätterton" and (c) the early Aptian "Fischschiefer" (=OAE 1a).

Five drill cores have been investigated over the last years (Frielingen 9, Zuckerfabrik 2, Scharrel 10, Scharnhorst 3) or are currently studied (Wiedensahl 2) with respect to calcareous nannofossils in order to establish a detailed biostratigraphic scheme for northern Germany based on previous works by Bown et al. (1998) and Mutterlose (1991). In total more than 400 samples are being qualitatively studied for calcareous nannofossils allowing to evaluate the applicability of these existing zonation schemes at a high-resolution. Further, high-resolution chemostratigraphy based on XRF core scanning of the drill cores Frielingen 9, Scharrel 10 and Zuckerfabrik 9 also allow for testing the synchronicity of appearances or disappearances of marker species on a regional scale.

References:
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