# Campanian-Maastrichtian nannofossil biostratigraphy of the Boreal Realm (Danish Basin chalks)

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Recently, two boreholes were drilled in the Danish Basin (Stevns-1 and Stevns-2), close to the well-known K/T boundary section at Stevns Klint; the aims included sedimentology, isotopes, biostratigraphy and palaeoecology of the chalks. The Danish Basin chalks comprise a system sculpted by energetic, long-lasting contour currents into ridge, drift, moat and valley systems (Lykke-Andersen & Surlyk, 2004; Surlyk & Lykke-Andersen, 2007). This presentation focuses on the Campanian to uppermost Maastrichtian biostratigraphy of the Stevns-1 well (Sheldon, in press).

The succession consists broadly of Upper Campanian–lowermost Maastrichtian bioturbated chalk succeeded by Lower Maastrichtian alternating chalks and marls. The Upper Maastrichtian part comprises almost pure chalk with some intervals of flint-rich chalk and marly horizons (Stemmerik *et al*., 2006).

The Stevns-1 well (with 100% core recovery) was drilled on a Maastrichtian positive ridge structure within the ridge, moat and valley complex. The Stevns-1 well is the thickest completely cored section (456 m) through the Upper Campanian–Maastrichtian in northwestern Europe. It therefore constitutes a significant biostratigraphic and palaeoecological reference for this interval.

The core from the Stevns-1 well comprises 'Campanian–Maastrichtian boundary interval', Maastrichtian and Danian chalk. The 'Campanian–Maastrichtian boundary interval' is referred to subzones UC16d$^{BP}$ to UC16a$^{BP}$ and the Maastrichtian (Tor Formation) spans UC20d$^{BP}$ to UC17 (after Burnett *et al*., 1998 and Network Stratigraphic Consultancy Ltd *in* Fritsen, 1999). The only apparent missing section appears to be Zone UC18, probably explained by the presence of minor firmgrounds, which were revealed by the lithological study.

A total of 64 species were encountered for the Maastrichtian and 71 for the 'Campanian/Maastrichtian boundary interval'. Nannofossil preservation compares favourably with that of North Sea chalks (Sheldon, 2006). Previously unreported nannofossil events include the extinction of *Helicolithus trabeculatus* and increase in abundance of *Prediscosphaera grandis* in the Upper Maastrichtian, and extinction of *Zeugrhabdotus praesigmoides* in the 'Campanian/Maastrichtian boundary interval'. Additional nannofossil events, which appear to contradict those of the established schemes, are discussed.

## References

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