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Climate of the Past Discussions

Interactive comment on "Late Cretaceous (Late Campanian–Maastrichtian) sea surface temperature record of the Boreal Chalk Sea" *by* N. Thibault et al.

N. Thibault et al.

nt@geo.ku.dk

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Thank you for your very positive and enthusiastic review. Concerning NTIs, the composition of the nannoflora is significantly different between the tropical/subtropical areas and the Boreal realm. This feature is particularly reinforced by the Late Cretaceous cooling trend which enhances provincialism. Although Thibault et al. (2006) did not propose the building of a proper NTI, they demonstrated similar trends for the relative abundance of cool-water taxa, that highlight particularly well the two cooling intervals of the Maastrichtian. Other Cretaceous NTIs mentioned by Ian Jarvis have been generated from significantly younger intervals mostly for early Cretaceous OAEs that do

not comprise the same dominant species in the nannofossil assemblage (Herrle et al., 2003; Bornemann et al., 2005; Mutterlose and Bottini, 2013; Bottini et al., 2015). Therefore, such NTIs can only constructed for particular time-intervals and as far as the Campanian-Maastrichtian interval is concerned, it is likely that the NTI built here can only be applied in the Boreal realm. I intend to stress on that point in the corrected version. Concerning productivity changes, yes, there seems to be some productivity changes expressed by the nannofossil assemblage of Stevns-1 through relative abundance of specific species as well as changes in the evolutionary dynamics but this calls for a long discussion along with the presentation of additional data which are intended to be presented in another manuscript more focused on micropaleontology whereas this paper focuses on past SSTs. As answered to M. Wagreich, I will of course add in the discussion a mention to the recent model of aquifer-eustasy with appropriate references of Wendler and Wagreich. Thanks for all the detailed minor editorial suggestions. I will of course take them into account into the final version. Nicolas

Interactive comment on Clim. Past Discuss., 11, 5049, 2015.