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A comparative study of past surface ocean properties in the subarctic using dinocysts and foraminiferal assemblages

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Next to planktic foraminifers, dinoflagellate cyst assemblages have a proven potential for reconstructing surface ocean properties in cold oceanic regions. For instance, this phytoplankton group reveals a much higher species diversity in the Nordic seas than planktic foraminifers. Moreover, due to a good correlation with modern seas surface temperatures (SSTs), salinity and sea-ice, dinocysts seem to be a servicable paleoceanographic tool. The already existing coretop data base of dinocysts has sufficient coverage of the cold arctic/subarctic regions to achieve a reliable accuracy for SST and other refined paleoreconstructions. The usability of dinocyts to reconstruct Holocene environments as well as glacial SST conditions in the Nordic seas was already shown, but has not been explored for the last interglaciations quantitatively. Data available so far, however, indicate sufficient species diversity for MIS 5 even at the Arctic Ocean margin, implying that this group has indeed a very promising, independent paleoclimate potential, which will allow us to complement and improve interpretations based on foraminiferal and other sedimentary proxies.

Using a sediment core from the Norwegian Sea (southern Voring Plateau) we will present a comparative case study between the Holocene and the last interglacial (MIS 5e) on the basis of dinocysts and planktic foraminiferal assemblages. These floral/faunal data are being compared with records of stable oxygen isotopes and ice-rafted debris, to provide further insight into the specific surface ocean conditions of the last interglacial warm period at high-northern latitudes.