Land - sea correlation of late MIS5 deposits in the southern North Sea region

PRESENTED BY

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ABSTRACT
During the Weichselian Early Glacial (MIS5d-a), rapid climatic changes occurred where global sea level varied tens of meters between the stadial (MIS 5d,b) and interstadial (MIS5c,a) periods. This was followed by a major sea level drop into the Early Pleniglacial (MIS4). Shallow, low-gradient shelf sea regions were significantly impacted by these shifts in sea level and the associated temperature variations, resulting in shifts in coastline configurations and changes in the vegetation characteristics of the surrounding landscapes.

The southern North Sea is an example of such a shallow shelf sea area, but the effects of Early Glacial climatic variations are poorly understood. Here, clay-rich Early Glacial sediments, referred to as the Brown Bank Formation (also known as Brown Bank Member), are known to occur in a vast region with a thickness varying between 2 and 20 m. In studies across the southern North Sea, shallow marine, lagoonal and lacustrine deposits have been described for the Brown Bank Formation, with ages linked to the period from MIS5d to MIS3. For this study, the Brown Bank sediment has been studied in unprecedented detail at its type area. Analyses of core material show shallow marine to pro-deltaic sediments deposited during the final phase of MIS5a and the transition into MIS4.

In order to place these sediments into a context of regional climatic, landscape and sea-level changes, and to better understand the sediment supply systems and processes, a solid land-sea correlation is needed. To achieve this, data from the Brown Bank Fm are compared with Early Glacial (i) deposits found onshore in the Saalian glacial Amersfoort basin and (ii) sediments cored offshore the Maasvlakte. Such long-distance correlations have been possible by combining core data with high-resolution seismic data. We will focus specifically on the comparisons of Early Weichselian deposits from these three locations by discussing the lithology, age and palaeo-environmental indicators. This will enable us to understand the evolution of this depositional systems in response to climatic changes during Late MIS5 and the MIS5-MIS4 transition in the North Sea basin.

DECISION: Keynote oral presentation