

Late Pleistocene palaeogeographical evolution of the southern North Sea

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During the late Middle to Late Pleistocene (ca. 160-11.7ka) the Belgian Continental Shelf (BCS) and the wider southern North Sea (SNS) experienced drastic and complex landscape transformations initiated by palaeoclimate changes related to the ice ages, causing ice sheet formation and large sea-level variations (up to 140 m). During periods of high sea-level, like today, the BCS and the SNS were completely submerged with the sea invading low lying coastal plains and river valleys. During low sea-level previously submerged plains were transformed into river landscapes with forests and open plains marked by a large biodiversity. One of these nearby river landscapes is the large Rhine-Meuse river system which has left a large imprint on the Dutch sector but also on the BCS. Until recently it was believed that all Pleistocene deposits on the BCS date from the Eemian and Holocene interglacials and are *in casu* marine deposits. New research however has shown that most of the preserved deposits actually are fluvial in origin and have, next to a Rhine-Meuse imprint, also a northern fluvial source from the central North Sea, with a possible input from North German Rivers like the Elbe and Weser.

Evidence for this is a.o. provided by gravel deposits found on the middle and outer BCS. Petrographic analysis shows that the larger part of these gravels originate from Scotland and the east coast of the UK (Dusar et al., 2016). Most likely ice sheet scouring of the rock basement has transported these gravels south and released them into either a lake or a river that transported calved off pieces of the ice sheet towards the Dover Strait. By unravelling the palaeogeographic evolution of the SNS, which is still poorly understood, we may get a good understanding of the context of future archaeological and palaeontological finds and how climate change impacts the landscape. One of the main outcomes of this study is to provide an archaeological potential map (APM) of the BCS. This map will help increase a proactive approach (e.g. archaeological impact reporting) as well as the cost-efficiency of activities at sea.

Keywords: Late Pleistocene; North Sea; palaeogeography