

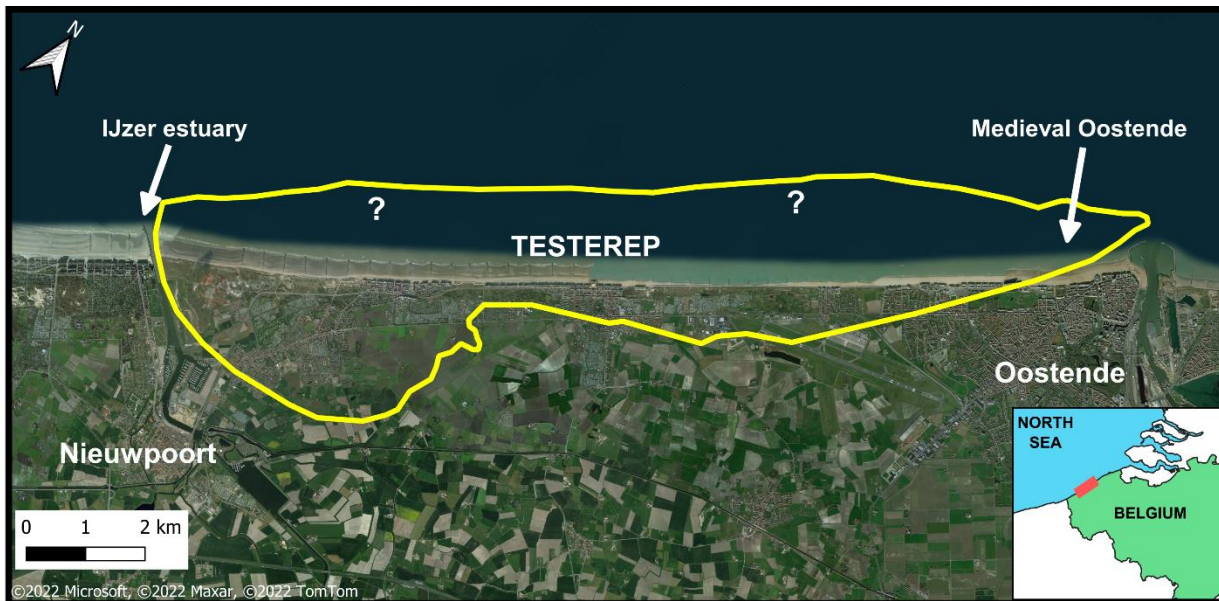
Palaeo-landscapes offshore Belgium: the search for the former Testerep peninsula

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Preference for poster presentation: YES



Hypothetical reconstruction of the Testerep peninsula on the coastal plain of Belgium.

Understanding coastal response to relative sea-level rise is key to planning for future changes and developing a suitable management strategy. Sedimentary records of the Holocene transgression provide a natural laboratory to study long-term changes in coastal landscapes. This is one of the aims of TESTEREP, an interdisciplinary research project focusing on the evolution of the Belgian Middle Coast during the past 5000 years. A large peninsula, known as Testerep, was once located between the coastal cities of Nieuwpoort and Oostende, bordered by the IJzer estuary and a tidal gully. As a relic of the former tidal environment, it is an ideal test case because many aspects of the coastal evolution have left traces in the landscape. However, many questions remain, for example, the exact location of Testerep's former coastline remains unclear because a large part of the peninsula was swallowed by the sea, including the medieval city of Oostende. The combined analysis of high-resolution seismic profiles and sediment cores, complemented with radiocarbon dating, has been used to investigate the submerged extent of the former peninsula. Preliminary results point to complex landscapes buried beneath the seabed. Large-scale channels and bars are preserved offshore of the IJzer estuary, revealing the location of the palaeo-valley. Broad prograding bodies are found parallel to the present-day coastline overlying a flat sub-horizontal surface, probably corresponding to old coastal barriers. A dynamic tidal environment is preserved at their back, dissected by small tidal creeks. Here, acoustic anomalies recognised in the seismic records allowed the identification of three levels of peat deposits, which represent former land surfaces subsequently drowned by the sea, the lower one

dating to 8 ka cal BP. The reconstruction of the evolutionary phases of these paleo-landscapes will allow investigation of the potential preservation of archaeological features offshore and the patterns of erosion and deposition that drove the retreat of the coastline.