

## Mapping the Axial Channel, southern North Sea

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The Axial Channel is a prominent geomorphological feature seen on the present-day bathymetry of the southern North Sea. The 150 km long depression extends from the Norfolk Banks in the North to the Dover Strait in the South. It is believed to be a remnant of a large and complex drainage system that existed during the late Pleistocene, when ice sheets occupied parts of the North Sea during three major glaciations: the Elsterian/Anglian (c. 500-450 ka), Saalian/Wolstonian (c. 350-130 ka) and Weichselian/Devensian (c. 80-11.7 ka) glaciations. The existence of these ice sheets was accompanied by a large fall in sea level, causing the southern North Sea to emerge and become isolated from the Atlantic. As a northern drainage route was blocked by these ice sheets when they coalesced during their maximum expansion, glacial meltwater but also river water from the major West-European rivers (e.g. Scheldt, Meuse-Rhine, Elbe) followed a southern drainage route (García-Moreno, 2017; Gibbard and Cohen, 2015; Hijma *et al.*, 2012). The present-day Axial Channel thus results from fluvial incisions during the glacial phases, with additional erosional activity during the subsequent marine inundations in response to rising sea level during the early parts of the interglacial phases. Understanding its evolution is crucial to understanding the paleogeographic changes that affected the region over the course of multiple glacial-interglacial cycles

A first step in understanding this evolution is carefully analyzing the present-day bathymetry of this region and mapping the preserved geomorphological features. Available offshore bathymetry data was compiled in the region from 53° to 51° latitude North. This includes the EMODnet Digital Bathymetry (DTM) map, at 20 m resolution, extended by high-resolution (up to 1 m) bathymetry blocks from the UK Admiralty Seabed Mapping Service, covering most of the eastern part of the study area.

### References

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### Keywords

Geomorphology; Southern North Sea; Axial Channel