



## **3D seismic interpretations of the Pliocene-Pleistocene stratigraphy and tunnel valleys of the North Sea Plateau-Fladen area, northern North Sea**

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The increasing coverage of 3D seismic data across the North Sea has allowed the detailed investigation of depositional environments extending beyond the most recent glacial advance into the basin. There are several generations of channels and incisions interpreted as tunnel valleys of varying size at varying stratigraphic depths throughout the Pliocene-Pleistocene units in the North Sea. Many of these features appear to have been reactivated on more than one occasion. The acoustic character of sediments infilling these features is also variable even within the same channel and their significance in relation to palaeo-ice sheet dynamics is still debated. We suggest that some of the observed incisions/valleys, particularly those formed around the Pliocene-Pleistocene boundary, may in fact be fluvial features rather than subglacially formed (based on size and flow path). Many of the smaller, straighter more recent generations of channels probably formed subglacially. If some of the older channels are fluvial, this has significant implications for the marine limit during this late Pliocene early Pleistocene period in the northern North Sea. Palaeo-iceberg scours are also found at certain stratigraphic horizons and these can be compared to those horizons with valleys/channels. Interpretations of the acoustic units/features will also be based on information from well and shallow core data allowing their depositional history and chronology to be investigated. Several physical properties have been measured on a number of cores from the investigated area. To be able to refine the chronology of the Pleistocene sediments for this part of the North Sea we plan to carry out new analyses and dating (strontium, radiocarbon and amino acid) on shallow cores/well material from the region. This will allow us to better constrain the times at which channels were being formed in this area and relate this to known glacial cycles in the North Sea.