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The ridges of the northern Porcupine Bank, west of Ireland: discussion on their structure, sedimentology and potential subglacial origin

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Recent publications have highlighted the over-consolidation of diamicts found in shallow sediment cores on or near seabed ridges from the north east of the Porcupine Bank, a bathymetric high >150km west of central Ireland in the northeast Atlantic Ocean. These observations have led to the interpretation of ridges there as potential end or lateral moraines constraining a maximum advance of the British-Irish Ice Sheet (BIIS) dated to between 24,720 and 19,182 Cal. BP. Other cores further east on the western outer Irish shelf are dominated by muds interpreted as proglacial which would indicate a deglaciation from a potential maximum advance by 22,800 Cal. BP. While these conclusions are not incompatible, they do suggest a very rapid advance of a westward tongue of ice of about 150km length with little evidence for regressive moraines on the Porcupine Bank.
This paper will present the results of analysis of a further 8 cores from the North and North East Porcupine Bank correlated with sub-bottom and sparker seismic data. Their sedimentology indicates two distinct diamicts that are contained within some of the seabed ridges of the area. Hypothesis for the formation of these features will be presented in light of new foraminiferal data and dates from these cores. Potential scenarios to account for the presence of grounded ice in the region will then be discussed.