



The Connemara Fan: a major glacial grounding line fan west of Ireland

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Glacigenic topography on the mid-shelf (\sim 130-350 m water depth) west of Galway, Ireland appears to have the morphological form, internal architecture and sediments associated with a large glacial grounding-line fan. Seismic data collected in 2009 and 2012 (during the GLAMAR and GATEWAYS 1 campaigns) reveal that the broad, arcuate ridges of the 'Olex moraine' form the landward part of a fan system which prograded beyond the mid-shelf break (defining the outer margin of the 'Clare Platform') westwards into the Porcupine Seabight. The topography is comparable to larger shelf-edge trough-mouth fans found further north along the same margin, however no discernible 'trough' has been identified on the Clare Platform. The ridge and fan topographic assemblage is renamed the 'Connemara Fan' in its entirety, based on its genetic relations and geographic location due west of Connemara, western Ireland. A macrofossil recovered from within a debris flow on the outer fan slope comprised of remobilised plumites dates to \sim 20 ka Cal B.P., indicating sediment reworking downslope following deglacial sediment input to at least that time. The Connemara Fan is the most southerly glacigenic fan identified along the north-east Atlantic margin. Its identification also adds to our knowledge of possibly multiple generations of ice sheets feeding onto the Irish shelf from west-central Ireland and the occurrence of ice sheet geometries and dynamics that evacuated ice, melt-water and sediment (ice streams?) westwards across the Clare Platform during past glaciations.