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Seismic stratigraphy of sediments on the outer Malin Shelf, north West Ireland

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Seismic reflection profiles crossing the outer Malin shelf north west of Ireland show a seaward thickening sediment cover over a channelised bedrock erosion surface. The area's seafloor topography is mapped by high-resolution INSS and INFOMAR MBES surveys, associated acoustic sub-bottom profiles and current investigations. MESH sparker and commercial 2D multichannel lines are constrained by borehole data and indicate a Miocene to Plio-Quaternary cover over Carboniferous strata. Prominent reflectors bounding well-defined glacial-interglacial sequences on inner shelf profiles are correlated with cross-shelf reflectors, allowing the transfer of a BGS Pleistocene glacial stratigraphy to outer Malin Shelf edge sequences. The model proposes several phases of cross-shelf grounded ice extension from Scottish sources with morainal banks occurring near bedrock and the truncation of a stratified shelf edge sediment wedge that may form part of the Donegal Fan.