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Transverse Eskers in the Irish Midlands: Implications for Meltwater Pathways in Ice Sheets

Cathy Delaney

Manchester Metropolitan University, Environmental and Geographical Sciences, Manchester, United Kingdom (c.delaney@mmu.ac.uk, 0044 161 2476318)

Large eskers in the Irish Midlands, formed during the last Glacial Termination (MIS 2) are thought to have formed time-transgressively in subglacial conduits feeding to a subaqueous margin, where conduit orientation was controlled by the ice sheet surface gradient in this area, and parallels ice flow direction as indicated by drumlinoid features. However, three eskers systems (the Ballyduff Esker, Kilcormac Esker and Streamstown Esker) have sections with orientations at up to 90 degrees to the dominant ridge orientation, over distances of up to 5km. These shifts in orientation are associated with a change in esker morphology from one or two continuous ridges to anabranching and fragmented ridges and small kames.

Exposures in the Ballyduff and Kilcormac Eskers indicate water flow was both parallel and perpendicular to ridge orientation during formation, and that deposition occurred en- or supra-glacially. Deposition of the Streamstown ridges occurred subglacially. In all cases the shift in ridge orientation indicates the diversion of meltwater drainage into transverse crevasse systems, reflecting a temporary phase of extensional ice flow.