

Last Glacial-Interglacial Transition ice dynamics in the Wicklow Mountains, Ireland

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Understanding of the extent and dynamics of former ice masses in the Wicklow Mountains, Ireland, during the Last Glacial-Interglacial Transition (LGIT; ~15-10 ka BP) is currently unresolved. Whilst it is acknowledged that the region hosted a local ice cap within the larger British-Irish Ice Sheet at the Last Glacial Maximum (LGM; ~27 ka BP), there has been little consideration of ice cap disintegration to a topographically constrained ice mass during the LGIT. This research has produced the first regional glacial geomorphological map, through remote sensing (aerial photograph and digital terrain model interrogation) and field mapping. This has allowed both the style and extent of mountain glaciation and ice recession dynamics during the LGIT to be established. This geomorphological mapping has highlighted that evidence for local glaciation in the Wicklow Mountains is more extensive than previously recognised, and that small icefields and associated outlet valley glaciers existed during the LGIT following disintegration of the Wicklow Ice Cap. A relative chronology based on morphostratigraphic principles is developed, which indicates complex patterns of ice mass oscillation characterised by periods of both sustained retreat and minor readvance. Variations in the pattern of recession across the Wicklow Mountains are evident and appear to be influenced, in part, by topographic controls (e.g. slope, aspect, glacier hypsometry). In summary, this research establishes a relative chronology of glacial events in the region during the LGIT and presents constraints on ice mass extent, dynamics and retreat patterns, offering an insight into small ice mass behaviour in a warming climate.