

The collapse of the British-Irish Ice Sheet: Establishing the indicative meaning of ice-rafted detritus record from the deep ocean

Catriona Purcell (1), James Scourse (1,2), and Richard Chiverrell (3)

(1) School of Ocean Sciences, Bangor University, Askew Street, Menai Bridge, Anglesey, LL59 5AB, UK, (osp22a@bangor.ac.uk), (2) CGES, College of Life and Environmental Sciences, University of Exeter, Peter Lanyon Building, Penryn, Cornwall, TR10 9EZ, UK, (3) Department of Geography and Planning, University of Liverpool, Roxby Building, Liverpool, L69 7TZ, UK

Ice-rafted detritus (IRD) across the North Atlantic provides an important archive for reconstructing the dynamics of adjacent ice margins during the Last Glacial Maximum (LGM). The complex relationship between ice sheet mass balance and IRD flux is still unclear, whereby an increase in IRD could indicate both a positive and a negative mass balance. To address these uncertainties, the source of the IRD needs to be identified. Determining the source of IRD for the British Irish Ice Sheet (BIIS) hitherto has only identified broad lithospheric provenances. We therefore aim to fingerprint the IRD within 3 adjacent deep sea cores to the fluctuations of individual ice streams by using X-Ray Fluorescence (XRF). The geochemical signature of glacial ‘end member’ sediments from three key areas 1) Irish Sea Ice Stream, 2) Donegal Bay/Malin Sea, and 3) The Minch Ice Stream will be determined. These end members will then be correlated to the composition of the IRD in the adjacent deep sea cores. We present initial results from the XRF analysis of the end member sediments. Principal Component Analysis was used to characterise these end members into groups with similar geochemistry to trace the source of the IRD flux in the deep ocean.