

## Weathering fluxes and sediment provenance on the SW Scottish shelf at the last deglaciation

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The effect of climate change on the disintegration of ice sheets remains uncertain. One approach to constrain future projections is the reconstruction of past ice sheet behaviour. Here we present a Pb isotope record extracted from the detrital and FeMn oxyhydroxide fractions of core sediments from the western Scottish shelf (collected during BRITICE-CHRONO Cruise JC106 in 2014) to investigate deglaciation of the Hebrides Ice Stream (HIS) after the Last Glacial Maximum. The recovered laminated glaciomarine mud sequences provide a monitor for the changing activity of HIS during its retreat. The isotopic signature of the detrital fraction suggests switching between at least three ice streams draining isotopically distinct catchments. Periodic spikes in  $^{208}\text{Pb}/^{204}\text{Pb}$  point to a high Th/U, possibly Archaean, source, which we associate with transitory enhanced activity of a Northern ice lobe of the HIS. Lead isotope ratios in FeMn oxyhydroxides, as a proxy for the timing of continental sediment inputs in marine settings, have been recently applied to constrain glacial/interglacial changes in the North Atlantic at high temporal resolution during the last glacial cycle [1]. The FeMn oxyhydroxide fraction in our samples shows a marked decrease from radiogenic ( $\leq 20.05$   $^{206}\text{Pb}/^{204}\text{Pb}$ ) at  $\sim 20$  cal ka to less radiogenic Pb isotope compositions ( $\sim 19.48$ ) towards the Bølling-Allerød Interstadial. This decrease is associated with the break-up of ice-streaming in western Scotland around that time, and the reduced flux of weathering-derived radiogenic Pb to the continental shelf. Smaller excursions of radiogenic Pb around 12 cal ka and 16.5 cal ka are tentatively associated with the Younger Dryas and Killard Point Stadial re-advances.

[1] Crocket *et al.*, *QSR* 82, p. 133-144, 2014.