



## **BRITICE-CHRONO: Constraining retreat of the last British-Irish Ice Sheet using luminescence geochronometry**

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The BRITICE-CHRONO project funded by NERC is a multi-million pound consortium designed to use multiple geochronometers to constrain the rate of retreat of the major outlets of the last British-Irish Ice Sheet (BIIS) at the end of the last glacial cycle. Cosmogenic isotopes, radiocarbon and luminescence dating methods are being applied to materials sampled along lines of ice retreat.

Luminescence dating for this project has targeted glaciofluvial sediments associated with ice retreat and over 150 samples from around the British Isles have been analysed in two laboratories. All samples have been analysed using small aliquot or single grain measurements of quartz optically stimulated luminescence (OSL). The resulting dose distributions have been modelled to obtain the depositional age. The major challenges in the application of quartz OSL can be grouped into two categories: signal characteristics and statistical characterisation of dose distributions.

Samples have been collected over the entire British Isles and have very variable characteristics. Some samples give bright OSL signals, whilst in other areas the quartz is dim. A pervasive problem is the occurrence of grains which appear to be quartz but which are sensitive to infrared stimulation. Effective screening of these grains is essential to avoid dose underestimation. The second challenge has been estimating appropriate numerical parameters for application of minimum age models. Extensive dose recovery experiments have been undertaken to form the basis for estimates of overdispersion, and in some areas these show highly variable luminescence characteristics. The reproducibility of the analyses undertaken has been assessed through an intercomparison between the two luminescence laboratories and the results of this exercise will be discussed.