Hybrid lecture on Thursday 11th December 2025

A high-resolution multiproxy approach to unravelling complexities of deglaciation

Presented by

Alex Clark BSc MSc

Date: Thursday 11th December 2025
Venue: St Michael's Church Meeting Room, Grenfell Road, Beaconsfield, Buckinghamshire HP9 2BP

This hybrid lecture is also being presented on Zoom

Venue opens and light refreshments from 6.30pm. Lecture starts at 7pm

Alex is currently a PhD student based at Royal Holloway, University of London and the British Geological Survey. He has always loved studying geography and trying to unravel mysteries of the past, leading him to now specialise in researching the climates and environments of the most recent geological period, the Quaternary (the last 2.6 million years).

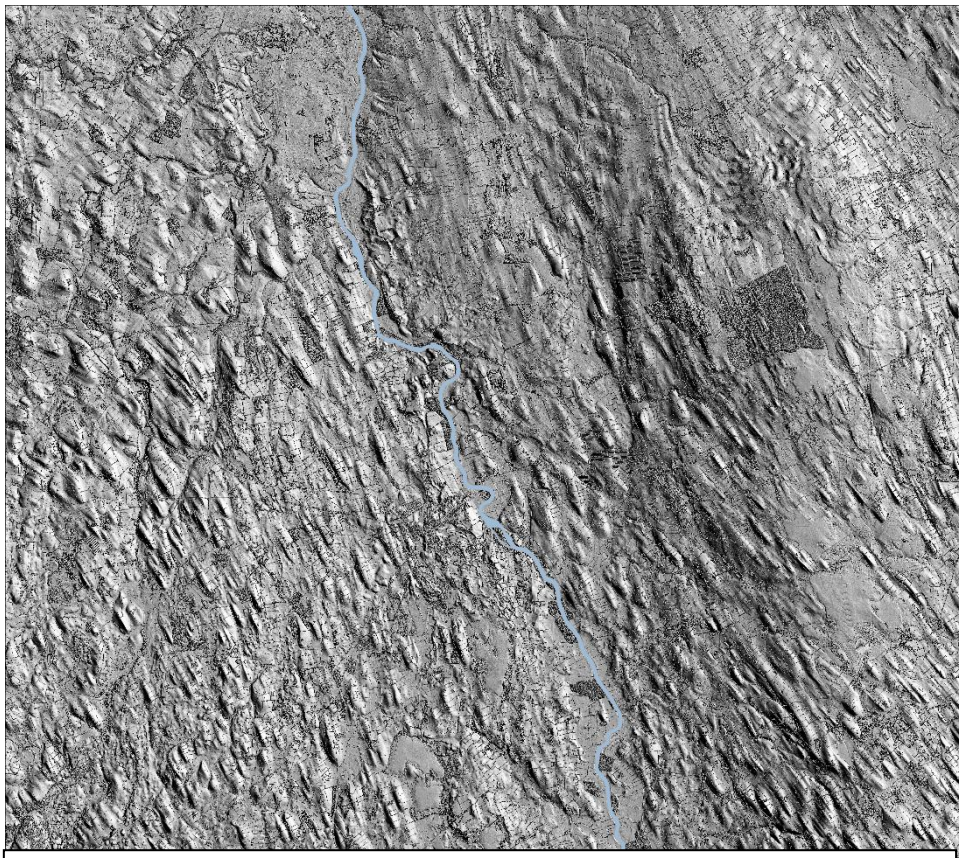
During his BSc Geography and MSc Quaternary Science degrees, he especially enjoyed learning about ancient ice sheets and volcanoes (a far cry from his upbringing in Sussex), which formed a big part of his PhD research. He has just submitted his PhD thesis, 'A multi-proxy investigation of northeast Irish Ice Sheet dynamics during the Last Glacial-Interglacial Transition', and he is looking forward to exploring future research-focussed roles.

Abstract

The last British-Irish Ice Sheet existed approximately 32,000-16,000 years ago, mantling much of Britain and all of Ireland, reaching as far west as the European continental shelf edge. A complex interwoven combination of drivers influenced the eventual decay of this highly dynamic ice sheet against a backdrop of fluctuating climatic conditions as it transitioned from a marine-based to terrestrial-based ice mass. Investigating the potential drivers of this transition at high spatial and temporal resolutions is vital for better understanding how

contemporary ice sheets over Greenland and Antarctica will undergo the same transition in the future.

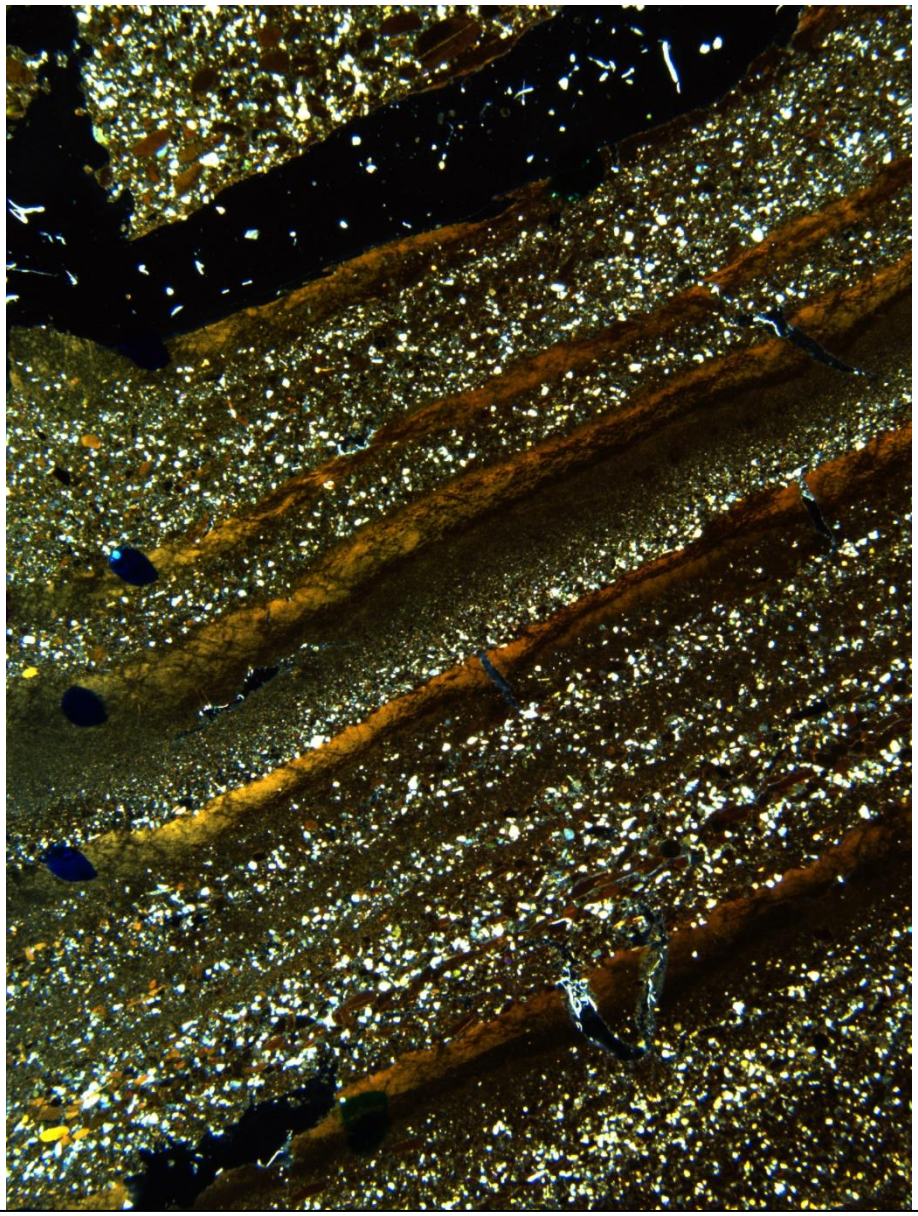
State-of-the-art palaeo-ice sheet models have improved our understanding of broad scale dynamics of British-Irish Ice Sheet retreat from its maximum extent. However, current models rely on geomorphological maps drawn from relatively coarse-resolution (e.g. 15-30 m) satellite imagery and a consortium of often sparse chronological datasets which focus on the marine-based retreat of this ice sheet. Consequently, whilst broad shifts in ice sheet geometry through time can be captured across the entire British-Irish Ice Sheet, some key questions pertaining to how it transitioned to a smaller, terrestrial-based ice mass remain elusive. Moreover, the potential external drivers (e.g. climate) and internal drivers (e.g. ice divide migration) of this transition remain poorly studied.



0.4 m horizontal digital surface model image of the Lower River Bann valley in Northern Ireland, revealing a range of subglacial bedforms oriented SE-NW.

In this talk, Alex will discuss how a high-resolution, multi-proxy approach to investigating palaeo-ice sheet dynamics may vastly improve our understanding of the marine-to-terrestrial-based deglaciation of the last British-Irish Ice Sheet. He will outline how cutting-edge sub-metre resolution digital surface models allow palaeo-ice sheet dynamics to be investigated at an unparalleled spatial resolution, illuminating complex ice-climate-environment interactions.

Alex will also discuss the application of new laminated glacial lake sediments in the UK for constraining the timing of deglaciation of the last British-Irish Ice Sheet at annual resolutions. Combined, these records help provide brand new insights into the processes driving a rapid and unstable retreat of this ice sheet, potentially much later than initially envisioned by computer models.



Photograph of annually laminated layers of silt (white and dark brown) and clay (glowing brown) up to ~5 mm thick viewed under cross-polarised light. Each clay-silt couplet was deposited during one year of sedimentation ~16,000 years ago in a lake fed by a retreating ice sheet.

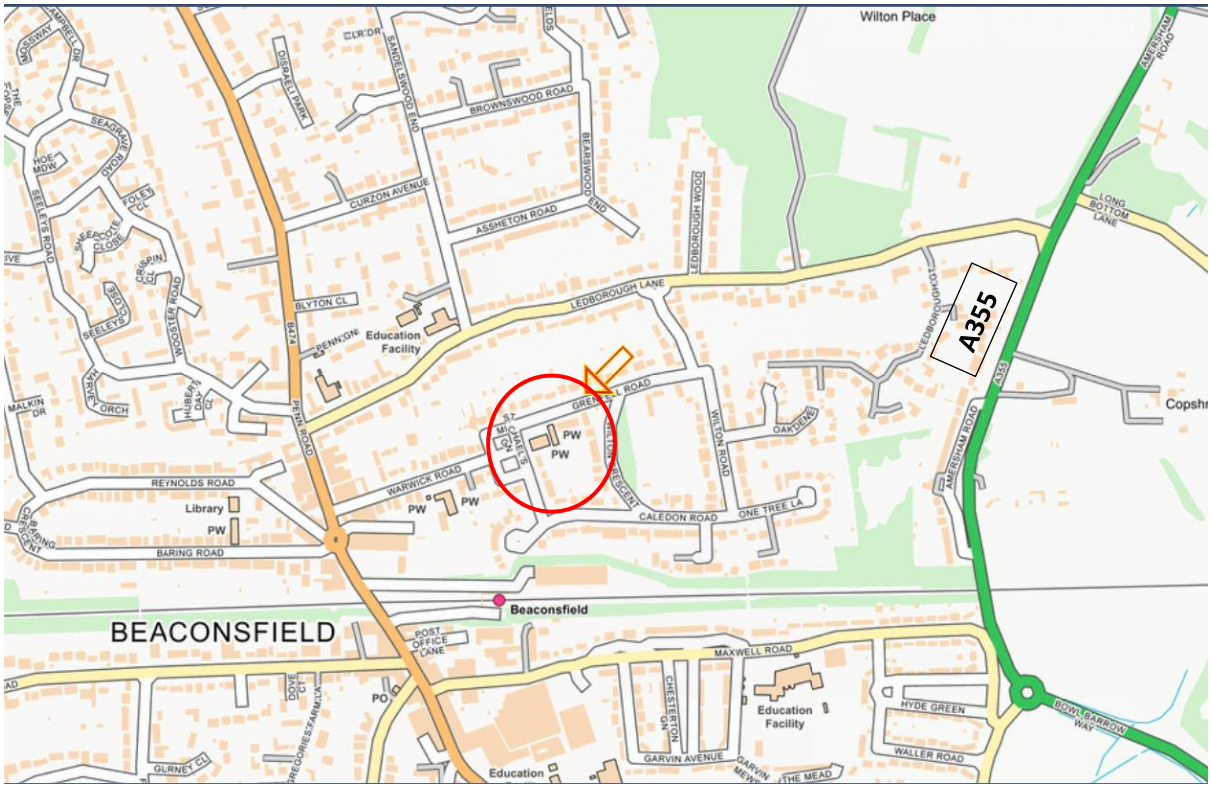
Accessing the venue

The lecture is being held in the Meeting Room in the single-storey building at the rear of St Michael's Church, Grenfell Road, Beaconsfield, Buckinghamshire HP9 2BP.

Getting to St Michael's Church (also see map below)

BY TRAIN St Michael's Church is a short walk from Beaconsfield Station on the Chiltern Line between London Marylebone and High Wycombe with typically several services an hour stopping at Beaconsfield.

BY ROAD There is plenty of free parking space within the grounds surrounding the church, with access off Grenfell Road in 'new' Beaconsfield. Beaconsfield can be accessed off the M40 Junction 2, then follow the A355 towards Amersham for about 1km on the Beaconsfield bypass and turning left onto Ledborough Lane, then see map below.



This event is free of charge to all members of the Geological Society. Priority will be given to Fellows and Student Fellows of the Geological Society who are members of the Home Counties North Regional Group.

Please book your places on a first-come-first-served basis by e-mail to homecountiesnorthregionalgroup@gmail.com

Please provide your membership number when booking your place.

Accessing the virtual lecture

Please book your place for online ZOOM attendance, providing your membership number, by e-mail to homecountiesnorthregionalgroup@gmail.com and you will receive a link to the Zoom platform by email before the event.

For more information on the Home Counties North Regional Group visit the website http://www.geolsoc.org.uk/hcnrg

CPD (Continuing Professional Development) hours – This Home Counties North Regional Group event qualifies for your CPD hours spent travelling to/from and attending the event. The content is intended to be suitable for early career through to experienced geologists and related professionals.

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