Hybrid Lecture on Wednesday 28th January 2026

Paraglacial slope stability in the Swiss Alps: 20 years of undergraduate fieldwork and research at the University of Hertfordshire

Presented by

Dr Tim Sands

BSc (Hons) PhD MCIWEM C.WEM MICE CEng FGS FRGS SFHEA

Date: Wednesday 28th January 2026

Venue: Conference Room, Redbourn Parish Centre, The Park, Redbourn, nr. St Albans, Hertfordshire, AL3 7LR

This hybrid lecture is also being presented on Zoom

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

Dr Tim Sands is a Principal Lecturer in geology, physical geography and environmental management within the Geography, Environment and Planning department at the University of Hertfordshire. He provides academic leadership as Programme Lead for the MSc Environmental Management programme; a major, internationally renowned postgraduate degree, distinguished by dual professional accreditation and offered in both full-time and part-time modes.

Dr Sands also serves as Chair of the Board of Examiners for the Initial Year Science programme and leads several advanced modules, including *Natural Hazards and Disaster Reduction* (Level 6), as well as *Water Resources* and *Integrated Waste and Pollution Management* (Level 7). Over the course of his time at the University, he has delivered specialist teaching in applied geology to students in the fields of civil engineering, geology, geography and environmental management. He is currently engaged in collaborative research, investigating the geomorphology and stability of bioengineered glacial moraines in Switzerland.

Dr Sands holds a BSc (Hons) in Engineering Geology & Geotechnics from Portsmouth. Early in his career, he served as a Research Assistant in the Engineering Geology Unit at the Institute of Geological Sciences in London. He subsequently went into industry with Wimpey Laboratories and later joined Wimpey Offshore Engineers & Constructors. His professional practice has taken him to major onshore and offshore projects across Qatar, Brazil, Norway, France, the UK and the North Sea. He completed his PhD at the University of Hertfordshire, researching into the *interaction between model bored piles and swelling London Clay*.

Abstract

In May 2025, a catastrophic debris avalanche destroyed the village of Blatten in the Swiss Canton of Valais, providing a stark illustration of the increasingly dynamic and hazardous conditions emerging in the Alps. This talk examines the ongoing paraglacial adjustments in the Valais, driven by climate change, glacier retreat, and permafrost degradation. Particular emphasis will be on mass-movement processes linked to glacier de-buttressing and the thawing of formerly ice-cemented slopes. These phenomena occur in complex alpine metamorphic terrains that exert strong controls on the exogenic processes across the region.

Drawing on two decades of field observations, measurements and sustained undergraduate field engagement, the presentation will address a wide range of mass-movement types: including rock falls, rockslides, rock avalanches (see Figure 1), glacier ice falls, debris flows, and moraine-slope instability (see Figure 2). Methods such as lichenometry and dendrochronology used for dating rock avalanches will be discussed, alongside research into glacial moraine stability informed by recent plant–clast interaction studies.

Figure 1. Glaciated Saaser valley from the Mattmark Dam towards Saas Almagell, with the 1965 glacier ice fall disaster site on the left and larch covered old rock avalanche deposits on the right.

These processes are not merely worthy of academic study: glacier ice falls and debris flows have repeatedly disrupted our field activities, prompting evacuations, sudden route changes, and logistical challenges, as access to mountain valleys were cut off.

The talk will consider the implications of these evolving hazards for the distinctive high-alpine communities of the Valais; communities with deep cultural traditions and economies increasingly reliant on year-round skiing, mountaineering and summer tourism.

This talk offers a case study in Alpine geomorphology and provides a close-up view of one of the most rapidly evolving high-mountain environments. As glaciers retreat and permafrost thaws, entire valley systems are entering phases of instability. By examining the emerging hazards and the profound implications for long-standing mountain communities, this presentation invites the audience to engage with climate driven landscape change and why understanding these processes has never been more urgent.

Figure 2. Feegletscher Nord lateral moraine and lower pro-glacial lake above Saas Fee, Canton Valais.

I would like to acknowledge the many colleagues and past students whose enthusiasm and hard work have shaped this talk. Over the last 20 years, countless undergraduate students of geology, geography, environmental management and ecology at the University of Hertfordshire, have enriched our field investigations. Their shared curiosity and commitment have been integral to exploring and understanding these rapidly changing Alpine environments.

Accessing the venue

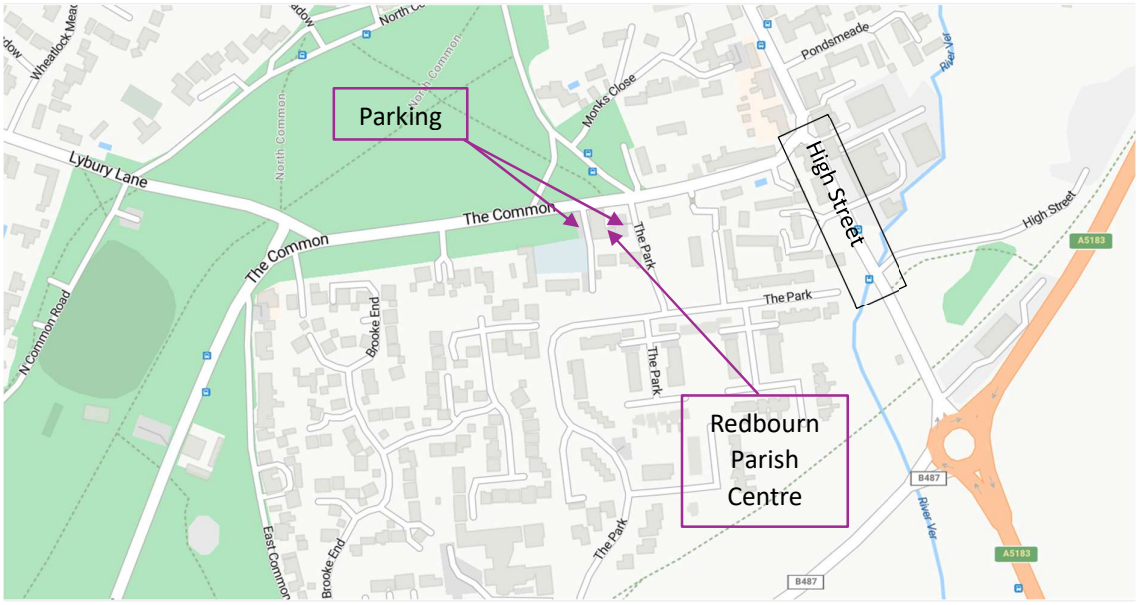
The lecture is being held in the Conference Room at Redbourn Parish Centre, The Park, Redbourn, near St Albans, Hertfordshire, AL3 7LR

Redbourn Parish Centre is located on The Park as shown on the map below, but be aware that The Park refers to several side roads/cul-de-sac roads.

By Rail: Redbourn does not have a railway station and is located roughly halfway between St Albans (City) and Harpenden stations on the Midlands Mainline/Thameslink route.

By Car: There is limited parking both in front of the Redbourn Parish Centre and to the rear of the centre on a first come first served basis. Elsewhere in Redbourn there is some on-street parking together with both double yellow and restricted single yellow line parking available.

Redbourn is easily accessible off the M1 Junction 9 then heading south of the A5183 Redbourn Bypass to the second roundabout at the southern end of High Street, then up High Street turning left onto Common Road and taking the 3rd turning on the left into The Park.



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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