



## **PhD Scholarship opportunity: Investigating drainage beneath the British-Irish Ice Sheet: groundwater flow modelling and meltwater channel networks**

The Department of Civil and Structural Engineering (CSE), in collaboration with the Department of Geography (Geog) at the University of Sheffield (tUoS), and the British Geological Survey invite applications from outstanding candidates for one competitive PhD scholarship opportunity.

This is part of the NERC funded Doctoral Training Partnership “ACCE” (Adapting to the Challenges of a Changing Environment), a partnership between the Universities of Sheffield, Liverpool, York and the Centre for Ecology and Hydrology.

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### **Project description**

The behavior of ice sheets is largely controlled by conditions at their bed. Observations made beneath the Greenland and Antarctic ice sheets reveal significant basal meltwater generation, storage and evacuation, which can lubricate the bed causing rapid ice-flow. Unfortunately, the pattern of meltwater flow beneath modern ice sheets is poorly understood. In particular, glaciologists have tended to think of the bed as an impermeable surface. However, the weight of an overlying ice mass has a major impact on groundwater flow patterns, recharge rates and distribution of freshwater. Detailing the complex aquifer-ice sheet interactions is therefore crucial both for draining meltwater and as a mechanism for landform and sediment genesis. In this project the bed of the British-Irish Ice Sheet, which has fully retreated revealing a bewildering array of meltwater features, in tandem with a numerical model, will be used to reconstruct the form, evolution and drainage of groundwater and basal meltwater. This will be explored through: (a) detailed mapping of meltwater channels; (b) developing and implementing a numerical model to reconstruct the pattern of groundwater drainage during the last glacial.

Candidates with knowledge and interests in groundwater/ice-sheet modeling, glacial hydrology and/or glacial geomorphology are particularly encouraged to apply.

### **Notes**

The studentship is fully funded for a minimum of 3.5 years and covers: (i) a tax-free stipend at the standard Research Council rate (at least £14,057 per annum for 2016-2017), (ii) research costs, and (iii) tuition fees at the UK/EU rate. Studentships are available to UK and EU students who meet the UK residency requirements. Students from EU countries who do not meet residency requirements may still be eligible for a fees-only award.

**Application link:** <http://www.sheffield.ac.uk/postgraduate/research/apply/applying>

**Application deadline:** 11 January 2016. Shortlisting will take place after the closing date and successful applicants will be notified promptly. Shortlisted applicants will be invited for an interview to take place at the University of Sheffield on w/c 15th February 2016.

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