Please find details below of a potential (open competition) fully funded PhD project at the University of Sheffield, UK. This is part of the NERC Doctoral Training Partnership “ACCE” (Adapting to the Challenges of a Changing Environment).  Further details of the project can be found on:

<http://www.shef.ac.uk/geography/phd/projects/investigating_drainage_ice_sheet_phd>

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

**Supervisors:** Professor Chris Clark (Geography Department, University of Sheffield), Dr Stephen Livingstone (Geography Department, University of Sheffield) and Professor Domenico Baú (Department of Civil and Structural Engineering, University of Sheffield)

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The behaviour 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 we will use 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, to reconstruct the form, evolution and drainage of groundwater and basal meltwater. This will be explored through:

1. Detailed mapping of meltwater channels.
2. Using a numerical model to reconstruct the pattern of groundwater drainage during the last glacial.

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

The studentship will be tenable for three and a half years in the first instance. Candidates must be an UK/EU resident to hold a NERC studentship.

To discuss your suitability for this project and further information please email: s.j.livingstone@sheffield.ac.uk