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Science for Humanitarian Emergencies & Resilience (SHEAR)

PhD Studentship:

Early warning of flash flood and landslide risk in S Asia

Assessing coincidence, predictability and early warning potential using global scale forecasting systems

Supervisors: Professor Hannah Cloke & Dr Liz Stephens
(h.l.cloke@reading.ac.uk, elisabeth.stephens@reading.ac.uk)

Department of Geography and Environmental Science
University of Reading

Project description

Flooding from intense rainfall regularly affects several thousands of people across SE Asia. In August 2017 at least 175 people died, and thousands fled their homes as floods swept across Nepal, India and Bangladesh. These devastating floods are often accompanied by destructive landslides which adds to the loss of lives and livelihoods. The European Centre for Medium-Range Weather Forecasts (ECMWF) is developing a flash flood forecasting system as part of the Global Flood Awareness System, which uses global ensemble numerical weather forecasts to provide early warning of intense rainfall.

This project will benefit from support from both flooding and landslide experts from the SHEAR consortium of projects, meteorological experts from ECMWF and the Met Office as well as working alongside partners in India and Nepal, for example the Medium term forecasting centre in India and Practical Action in Nepal.

The PhD student will:

- Develop and evaluate long term datasets of flash flood indices such as those based on the Extreme Forecast Index from ensemble reforecasts and new reanalysis products such as ERA5 held at ECMWF.
- Evaluate the potential skill of the flash flood forecasts using these long term datasets and flow archives held by authorities in India/Nepal and remotely sensed data sources (where available)
- Identify coincidence and timings of flash floods and landslides, and the factors influencing predictability in selected study areas.
- Develop post-processing tools to improve communication of landslide risk from flash flooding, which can be adopted by project partners in India/Nepal.

The student will undertake a series of UK and overseas placements in the partner organisations, including a period working with ECMWF on the flash flood forecasting, with the BGS and Met Office on landsliding, and 2 overseas placement periods with partners in India/Nepal including Practical Action and the Medium Term Forecasting Centre in India.

Project Advisors: Helen Reeves (BGS), Calum Baugh (ECMWF), Bruce Malamud (KCL), Jo Robbins / Rutger Dankers (Met Office)



Damage wrought by flash floods in the Chilobwe Township of Blantyre in southern Malawi during January 2015. *Photo credit: Andrew Kruczkiewicz*

Skills and experience:

This project would be suitable for students with a degree in meteorology, physical geography or environmental science. Students will be required to work in a unix programming environment with R, python or similar, previous experience is desirable but not essential as training will be provided.



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Eligibility and funding:

Students must hold an undergraduate degree (equivalent of upper second-class honours) and preferably a Masters qualification in a relevant discipline.

Due to visa restrictions the student must spend at least 50% of their time at the University of Reading, the exact proportion will be set by the supervisors based on the student's previous experience and the budget available for placements. The student must work on this project full-time.

Applicants from the UK, South Asia or sub-saharan Africa are eligible for a stipend of approximately £14553 per annum (tax free) and tuition fees at the UK / EU or overseas student rate for a period of three years with a possible further half year extension.

Contact:

For informal discussion about this studentship please contact Professor Hannah Cloke, University of Reading h.i.cloke@reading.ac.uk.

How to apply:

To be considered for the studentship, please submit a CV, a cover letter highlighting your relevant background and experience, and two referees, to h.i.cloke@reading.ac.uk.

Should you be selected for this post you will be invited to submit a formal application through the University of Reading online application system. Details of this and more can be found here: <http://www.reading.ac.uk/graduateschool/gs-homepage.aspx>.

Deadline: 15 October 2017 or until the position is filled.