

# Mike Spencer

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## LINKS

Blog: [scottishsnow](#)  
 Twitter: [@MikeRSpencer](#)  
 LinkedIn: [mikerspencer](#)  
 StackExchange: [mikerspencer](#)

## SKILLS

### COMPUTING

Operating systems:

Linux (Debian based) • Microsoft Windows

Programming and databases:

R • SQLite •  $\text{\LaTeX}$  • Git • Bash

Spatial:

QGIS • GRASS • ArcGIS • MapInfo Pro

Other:

Microsoft/Libre Office • Most hydrological and hydraulic modelling software, e.g. ISIS, HEC, FEH, TUFLOW

### DATA

Types:

Gridded (e.g. satellite): NetCDF, rasters, hdf, images • SQL/databases • time series • subjective data (social)

Abilities:

Mining • wrangling/munging • management • quality assurance • repeatability • exploration • analysis • modelling • statistics

## EDUCATION

### UNIVERSITY OF EDINBURGH

PHD IN SNOW HYDROLOGY  
 Q1 2016

### LANCASTER UNIVERSITY

BSC IN ENVIRONMENTAL SCIENCE  
 June 2004

## MEMBERSHIP

British Hydrological Society  
 Royal Meteorological Society  
 Royal Statistical Society

## INTERESTS

- Combining disparate big data sources to answer real world questions, e.g. citizen science data, official sources, model outputs. Answering new questions with old data.
- Finding more efficient ways of tackling problems.
- Being at the forefront of ideas, using the best tools for a job and finding accessible ways to present information.

## RESEARCH

### PHD | SNOW HYDROLOGY

Sep 2011 - Q1 2016 | University of Edinburgh, Scotland

- Stochastic time series snow modelling to establish frequency of snow cover and melt.
- Statistical modelling of snow cover dependence on large scale atmospheric circulation indicators (NAO).
- Analysis of Scottish satellite snow observation veracity.
- Data mined historic Snow Survey of Great Britain dataset.

### FIELD ASSISTANT | GRIFFIN FOREST FIELD SITE

Oct 2013 - May 2015 | University of Edinburgh, Scotland

- Hydrological nutrient (carbon/nitrogen) transport project.
- Data management and exploratory analysis of irregular disparate time series field and lab data.
- Fortnightly field and lab work.

### FIELD CAMPAIGN | ABISKO, SWEDEN

Mar 2012 | University of Edinburgh, Scotland

- Lead one month of fieldwork in sub-Arctic Sweden, undertaking density sampling of Boreal forest canopy.
- GIS analysis and figure preparation for Reid *et al* (2014) paper.

## EXPERIENCE

### HONORARY OFFICE | GRADSCHOOL CHAIR

Feb 2012 - Jan 2013 | Edinburgh, Scotland

- Committee chair representing 200 GeoScience PhD students.
- Ran 3 day residential conference with 120 delegates from university and industry.
- Responsible for £25'000 of budget with £15'000 raised through industry sponsorship.

### HALCROW GROUP LTD | SENIOR HYDROLOGIST

Sep 2008 - July 2011 | Edinburgh, Scotland

- Hydrological lead for Halcrow flood risk projects in Scotland.
- Training and supervision of staff.
- Project and package management.
- Flood forecasting model design and build.
- Fluvial hydrology and hydraulic analysis.

## ARTICLES

### PEER REVIEWED

Spencer, M. & Essery, R., *Scottish snow cover dependence on the North Atlantic Oscillation index*, Hydrology Research, **2016**.

Reid, T., Spencer, M., Huntley, B., Hancock, S., Essery, R., Carle, J., Holden, R., Baxter, R. & Rutter, N., *Spatial quantification of leafless canopy structure in a boreal birch forest*, Agricultural and Forest Meteorology, **2014**, 188, 1-12.

Spencer, M., Essery, R., Chambers, L. & Hogg, S., *The Historical Snow Survey of Great Britain: Digitised Data for Scotland*, Scottish Geographical Journal, **2014**, 130, p252-265.

### OTHER

Hollebrandse, F., Spencer, M. & Nutt, N., *Open Hydrology launches open-source flood estimation software*, British Hydrological Society Circulation No. 125, **2015**.

## CONFERENCES

### TALKS

QGIS user group, Edinburgh, Oct 2014  
BHS symposium, Birmingham, Sep 2014  
Contemporary climate seminar, Edinburgh, Jul 2014  
EuRuCAS summer school, St Petersburg, Jul 2014  
Scottish hydrological group, Stirling, Oct 2013  
BHS symposium, Birmingham, Jul 2014  
Northern rivers institute seminar, Aberdeen, Apr 2012  
Postgraduate student research conference, Edinburgh Feb 2012

### POSTERS

International conference on alpine meteorology, Innsbruck, Sep 2015  
QGIS user group, Edinburgh, May 2015  
SNIFFER, Edinburgh, Feb 2015  
BHS symposium, Birmingham, Sep 2014  
Upland hydrology in the UK, Leeds, Mar 2014  
International Glaciological Society British branch, Loughborough, Sep 2013  
Postgraduate student research conference, Edinburgh, Mar 2013

## EXPERIENCE CONTINUED

### ENVIRONMENT AGENCY WALES | HYDROLOGIST

Dec 2005 - Sep 2008 | Haverfordwest, Wales

- Flood magnitude statistics.
- Hydrology, hydraulics and GIS analysis with quality assurance.
- Data management of flood risk assessments, hydraulic models and GIS output.
- Flood Warning Duty Officer; forecasting and dissemination for Floodline.

## TEACHING

### STUDENT SUPERVISION

2012 - 2014 | University of Edinburgh

- MSc GIS: *The development of a regression based Soil Moisture equation for the Hydrological Assessment of Natural Flood Management in Scotland*, 2013.
- BSc Geophysics and Meteorology: *Remote snowline measurement in the Scottish Highlands - a scoping exercise*, 2012.

### LECTURES

2013 - ongoing | University of Edinburgh

- MSc Water Resources lecture (Annual frequency)
- PhD student inductions (fieldwork, web presence, data science)

### DEMONSTRATING

2011 - ongoing | University of Edinburgh

Geology and landscapes • Geomorphology • Land use and water resources • Meteorology: atmosphere and environment • Quantitative methods in geography • Water resources field course

## OTHER

### JOURNAL REVIEWER

Climate Change  
Geoscientific model development

### FUNDING AWARDS

2014	EuRuCAS	All costs for Arctic hydrology summer school St Petersburg, Russia
2014	NERC	All costs for introduction to scientific computer course York, England
2013	NERC	All costs for environmental statistics course Glasgow, Scotland
2012	INTERACT	Travel and accommodation for Boreal forest research Abisko, Sweden
2011	NERC	Fully funded PhD

## PERSONAL

Mike has been based on the outskirts of Edinburgh since Autumn 2008. He balances his work commitments with a young family, taking a day out a week for parenting. When he's not at a computer Mike can be found on a bike, mountain, up a ladder doing DIY or gigging as a trombonist.

## REFERENCES

References available from University of Edinburgh, Halcrow Group Ltd, PhD external examiner (Liverpool University) and Dundee University available on request.