

# Mike Spencer

<http://mikerspencer.com>  
[spencer.mike.r@gmail.com](mailto:spencer.mike.r@gmail.com)

## 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

## LINKS

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

## INTERESTS

- Repurposing existing data to answer real world questions, e.g. citizen science data, official sources, model outputs.
- Probabilistic understanding of rare events.
- Using data science methods to solve environmental problems.

## RESEARCH

### PHD | SNOW HYDROLOGY

Sep 2011 - Jun 2016 | University of Edinburgh, Scotland

- Stochastic time series snow modelling.
- Extreme value statistics of snow cover and melt.
- Spatial statistics 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.

### RESEARCH 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 field and lab data.

### FIELD CAMPAIGN | ABISKO, SWEDEN

Mar 2012 | University of Edinburgh, Scotland

- Snow, atmosphere, biomass cross disciplinary project.
- Lead fieldwork in Arctic Sweden, density sampling the Boreal forest canopy.
- GIS analysis and figure preparation for Reid et al (2014) paper.

## EXPERIENCE

### 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.

### 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.

### ARCADIS GMI LTD | CONSULTANT

Feb 2005 - Dec 2005 | Newmarket, England

- Contaminated land assessment.
- Field sampling, investigation and reporting.

## ARTICLES

Spencer, M. & Essery, R., *Reanalysis of potential snowmelt in a temperate climate*, Journal of Hydrology, **in prep.**

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

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

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.

## CONFERENCES

### TALKS (SELECTED)

*Reanalysis of Scottish mountain snow*, EUBAP seminar, Edinburgh, **Mar 2016**

*Time series rasters and the free and open source approach*, QGIS user group, Edinburgh, **Oct 2014**

*Scottish snow cover and the North Atlantic Oscillation*, British Hydrological Society (BHS) international symposium, Birmingham, **Sep 2014** • EuRuCAS summer school, St Petersburg, **Jul 2014**

*Arctic river discharge and the search for a climate change signal*, Contemporary climate seminar, Edinburgh, **Jul 2014**

*The Historical Snow Survey of Great Britain: Digitised Data for Scotland*, Scottish hydrological group, Stirling, **Oct 2013**

*Scottish snowline observations - the past and future*, BHS symposium, Birmingham, **Jul 2014**

*Reanalysis of Scottish mountain snow observations*, Northern rivers institute seminar, Aberdeen, **Apr 2012**

### POSTERS (SELECTED)

*Snowmelt frequency in a mountainous, temperate, maritime environment*, International conference on alpine meteorology, Innsbruck, **Sep 2015**

*Snow survey of Great Britain: digitised data for Scotland*, BHS symposium, Birmingham, **Sep 2014**

*Scottish snow - a viable dataset*, International Glaciological Society British branch, Loughborough, **Sep 2013**

## VOLUNTEERING

### SCOTTISH YOUTH HOSTELS ASSOCIATION | DIRECTOR

Jun 2016 - ongoing | Edinburgh, Scotland

- Responsible for governance of SYHA.
- Member of Governance Nomination Committee.
- Responsible for over 60 hostels.

### SCHOOL OF GEOSCIENCES 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 £25000 of budget with £15000 raised through industry sponsorship.

## 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	£2000 for Arctic hydrology summer school St Petersburg, Russia.
2014	NERC	£1000 for introduction to scientific computing course York, England.
2013	NERC	£1000 for environmental statistics course Glasgow, Scotland.
2012	INTERACT	£5000 travel and accommodation for Boreal forest research Abisko, Sweden.
2011	NERC	£65000 for PhD fees and stipend.

### MEDIA

2016	BBC Radio Scotland: Drive time interview
2016	Journal article newspaper coverage, incl. The Scotsman, BBC News website and The Times
2012	BBC Radio Scotland: Out of Doors interview

## 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.