Mike Spencer

http://mikerspencer.com
spencer.mike.r@gmail.com

EDUCATION

UNIVERSITY OF EDINBURGH
PhD in Snow Hydrology
June 2016

LANCASTER UNIVERSITY
BSc in Environmental Science
June 2004

LINKS

Blog: scottishsnow
Twitter: @MikeRSpencer
LinkedIn: mikerspencer
StackExchange: mikerspencer

MEMBERSHIP

Royal Statistical Society
Research Software Engineers Association
British Hydrological Society

SKILLS

COMPUTING

Operating systems:
Linux (Debian based) • Microsoft Windows
Programming
R • SQL • LaTeX • Git • Bash • HTML
Spatial:
QGIS • GRASS • ArcGIS • MapInfo Pro
Other:
Microsoft/Libre Office • Desktop publishing, e.g. Scribus • 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 • Numeric • Categorical (e.g. social)
Abilities:
Mining/extraction • Wrangling/munging • Management • Quality assurance • Repeatability • Exploration • Analysis • Modelling: statistics/physically based/machine learning • Visualisation • Forecasting • Interpretation • Insight

ABOUT

OVERVIEW

Mike research data scientist. His data analysis language of choice is R, but he is keenly developing other skills as projects require. He enjoys diverse work challenges and has been employed in the public, private and academic sectors, giving him the edge in situations that require quick learning and adaptability.
Mike supports an economics and social science research group within Scotland's Rural College (SRUC). He provides expert data advice to help colleagues scale their workflows and runs training sessions for researchers and students on databases, programming, GIS and others tools. His work at SRUC involves linking and analysing quantitative and qualitative data, to provide insight for Scottish Government policy creation.

INTERESTS

- Repurposing existing data to answer real world questions.
- Making data analysis scalable and repeatable.
- Using data science methods to improve workflows.

SKILLS PORTFOLIO

DATA ANALYSIS

- These results from an analysis of UK climate data show Mike's ability to fit a regression model across a number of factors. This analysis is hosted here.
- Mike is currently working on analysis of employment from agriculture in mountainous areas of Scotland.

DATA VISUALISATION

- Following snowfall across Britain in April 2016, Mike wrote this blog post, which shows the frequency of monthly snow cover. It contains plots which visualise complex spatial and temporal data.
- Mike designed and ran a workshop for the Scottish Governments research providers on food an agriculture. Summary information from this workshop can be found at the project blog: visualising-complexity.

PROGRAMMING

- Mike uses Git to version control his work. You can find him on Github and Bitbucket, note that some repositories are private.
- Mike is active on Stack Exchange. Example answers include raster resolution and working with logicals.

GIS

- This GIS network analysis shows the shortest road distance between 1.6 million GB postcodes and the closest train station. This analysis uses Ordnance Survey OpenData.
- An example of Mike's cartography skill is this map, highlighting different elevations visible from a point in the Cairngorm mountains.

OUTPUT

ARTICLES (SELECTED)

(Click titles for links, where available)

Spencer, M., *Snow Survey of Great Britain: transcribed data for Scotland, 1945 to 2007*, NERC Environmental Information Data Centre, **2016**.

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.

TALKS (SELECTED)

Predicting snowmelt with R, Royal Statistical Society, **Apr 2017**

Snow, R and keeping people safe, EARL, **Sep 2016**

Scottish snow, EdinbR, **Jun 2016**

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

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

Scottish snow cover and the North Atlantic Oscillation, British Hydrological Society (BHS) symposium, **Sep 2014**

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

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

Scottish snowline observations - the past and future, BHS symposium, **Jul 2012**

Reanalysis of Scottish mountain snow observations, Northern Rivers Institute seminar, **Apr 2012**

POSTERS (SELECTED)

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

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

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

EXPERIENCE

AGRIMETRICS | Executive leadership team - data specialist

Aug 2018 - ongoing | Rothamsted, England

- Provide data oversight for the UKs leading agrifood centre.
- Represent the interests of SRUC at Agrimetrics.

SRUC | Research data scientist

Jan 2017 - ongoing | Edinburgh, Scotland

- Devised data strategy for research group.
- Expert data advice to 45 researchers and students.
- Data linking and analysis of: animal movements, qualitative surveys, spatial data, environmental data, and others.
- Developed and ran internal and external data skills training series.
- Architect and sys admin for research group data centre.
- Briefing executive team and board on data challenges and recommended solutions.
- Writing journal and policy briefing papers.
- Writing funding applications.

SCOTTISH YOUTH HOSTELS ASSOCIATION | Director

Jun 2016 - June 2017 | Edinburgh, Scotland

- Advertised, interviewed and appointed a new CEO.
- Responsible for governance of SYHA.
- Co-opted to board.

UNIVERSITY OF EDINBURGH | PhD

Sep 2011 - Jun 2016 | Edinburgh, Scotland

- Stochastic time series snow modelling and model build.
- 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 mining of historic Snow Survey of Great Britain dataset.

HALCROW GROUP LTD | Senior hydrologist

Sep 2008 - July 2011 | Edinburgh, Scotland

- Project lead for Scottish hydrological work.
- Training and mentoring of staff.
- Project and package management.
- Flood forecasting model design and build.
- Hydrological, hydraulic and GIS modelling and analysis.

ENVIRONMENT AGENCY WALES | Hydrologist

Dec 2005 - Sep 2008 | Haverfordwest, Wales

- Extreme value flood statistics.
- Hydrology, hydraulics and GIS modelling and analysis, with quality assurance.
- Data management of flood risk assessments, models and spatial data.
- Flood warning duty officer, both forecasting and dissemination.

PERSONAL

Mike has been based on the outskirts of Edinburgh since Autumn 2008. He balances his work commitments with a young family, spending a day a week with his son. 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.