

## Emily Potter

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### Education and employment

- 2019-Present      **British Antarctic Survey, Postdoctoral researcher**  
I am working as part of the PeruGROWS (Peruvian Glacier Retreat and its Impact on Water Security) project, which aims to determine past and possible future changes to climate, glaciers and water availability over the Rio Santa River Basin, and ultimately to provide possible future mitigation and adaptation scenarios. My key research aims and responsibilities are:
- To create a high resolution hindcast over the Rio Santa River Basin, and to bias-correct this hindcast using available observations.
  - To work with partners in Peru to develop future climate projections for the region.
  - To ensure that the climate output at a suitable scale, and in a suitable format to be used in glaciological and hydrological models.
- 2015-2019      **British Antarctic Survey and Cambridge University, PhD**  
Fully funded NERC scholarship.  
Thesis title: *Wind and temperature in a glacierised Himalayan valley, and their controlling mechanisms*  
An investigation into the dynamics of the local valley wind regime, and the temperature variation over the Dudh Koshi Valley in Nepal. The key components of my PhD are:
- Ran the Weather Research and Forecasting (WRF) model at high resolution over the Dudh Koshi Valley, Nepal, to identify the key dynamical processes which cause the diurnal wind cycle.
  - Altered the WRF model code to output the terms in the momentum and potential temperature budget.
  - Assessed the impact of the land surface on the wind and temperature by removing all the permanent snow and ice in the model.
  - Introduced a new surface layer into the WRF model to represent debris-covered glaciers.
  - Took part in a seven-week field campaign in the Dudh Koshi Valley to determine the temperature variation in the valley and on the debris-covered Khumbu Glacier. The expedition was organised in collaboration with colleagues from Leeds and Aberystwyth Universities.
- 2014-2015      **University College London, MSc Mathematical Modelling (distinction)**  
Courses on all aspects of Mathematical modelling, including Geophysical Fluid Dynamics.  
  
Thesis title: *A simple model of a wind-driven jet in the near-equilibrium limit.*
- 2012-2014      **Maths teacher, Highgate School, London**  
Taught students aged 11-18, for all levels of public examinations.
- 2008-2012      **University of Oxford, MMath Mathematics (2:1)**  
With a focus on courses in fluid dynamics and numerical solutions to equations.
- 2001-2008      **Camden School for Girls**  
A levels: Maths A, Further maths A, Geography A, Classical Greek A.  
GCSEs: 10 at A\*, 1 at A, including Maths and English.

### Publications

**Potter, E.R.**, Orr, A., Willis, I.C., Bannister, D. and Salerno, F., 2018. Dynamical drivers of the local wind regime in a Himalayan valley. *Journal of Geophysical Research: Atmospheres*, 123(23), pp.13-186. (Nominated by the editor for highlight in EOS).

### Conference proceedings

- 2019      International Union of Geodesy and Geophysics: Controls on the Variability of the Near-Surface Temperature Lapse Rate in a Himalayan Valley. Oral presentation.
- 2018      India UK Water centre: Integrating precipitation forecasts and climate predictions with basin-scale hydrological modelling in the Himalayas-Dehradun, India. Oral presentation.
- 2018      British Antarctic Survey: Student Symposium-Cambridge, UK. Oral presentation. Also 2017, Oral presentation and 2016, poster presentation.
- 2018      Royal Meteorological Society: Student and Early Careers Scientists Conference-York, UK. Oral presentation (commended talk, invited to give a presentation at the centre in Edinburgh in 2019 as a result).
- 2017      American Geophysical Union: Fall Meeting-New Orleans, USA. Poster presentation.

2017	Royal Meteorological Society: Student and Early Careers Scientists Conference-Exeter, UK. Poster presentation (commended poster).
2016	International Glaciological Society: European branch meeting-Munich, Germany. Poster presentation.

## Grants awarded

2017	Mount Everest Foundation: Grant to partially fund fieldwork. £1000
2017	Royal Geographical society Dudley Stamp Memorial Grant: Grant to partially fund fieldwork. £500
2017	Royal Meteorological Society Legacies fund: Grant to partially fund fieldwork. £900
2017	Wolfson College Cambridge travel support grant: Grant to fund travel to the American Geosciences Union Fall Meeting. £1200
2015	National Environmental Research Council PhD studentship: Fully funded including university tuition fees, maintenance grant and a research training support grant.

## Public talks and outreach events

2018	Royal Meteorological Society "Want to be a Meteorologist?" careers talk to 14 to 16 year old students.
2017	BlueDot science festival "Vanishing Glaciers of Everest" activity.
2017	Science museum London, talk on the history of weather and climate forecasting. This also included training in giving scientific talks to the public.

## Technical and statistical skills

### Computing

- Experienced in running the Weather Research and Forecasting model over complex terrain at high resolution, and altering the model code.
- Comfortable working in a UNIX environment, and in various supercomputer environments (British Antarctic Survey internal supercomputer and JASMIN).
- Experienced programming using Python (including NumPy, SciPy and pandas).
- Some experience with Fortran 90, MATLAB and NCL.
- Some experience with ArcGIS.
- Experienced using LaTeX and Inkscape.

### Statistics

- Various statistical analysis methods, including Empirical Orthogonal Functions analysis and accounting for autocorrelation in statistical tests.

### Other technical skills

- Experience with setting up automatic weather stations under difficult field conditions, including working with Campbell data loggers.

## University teaching experience

2016-2017	Small group teaching for the first year "maths for Natural Sciences" course at Cambridge University.
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## Selected Scientific Training

2016	Weather Research and Forecasting Model training.
2017	Fieldwork first aid course.
2017	Climate dynamics summer school.

## Other academic responsibilities

- Reviewer for *Journal of Glaciology*.
- Helped to organise multiple events for the Cambridge Centre for Climate Science, including inviting external speakers.
- Organising meetings with partners in Peru to discuss the climate modelling aspects of the PeruGROWS project, both over Skype and, recently, in person while attending a kick-off meeting for the PeruGROWS project.

## Referees

**Dr. Andrew Orr** (PhD supervisor) British Antarctic Survey, Madingley Rd, Cambridge CB3 0ET, United Kingdom.  
Email: anmcr@bas.ac.uk, Tel: +44 (0) 1223 221256

**Dr. Ian Willis** (PhD supervisor) Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER, United Kingdom. Email: iw102@cam.ac.uk. Tel: +44 (0) 1223 336515