

## Personal details

**Name** Dr Simon Christopher Peatman  
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**Nationality** British

## Employment

December 2018–*July 2023* Research Fellow  
School of Earth and Environment, University of Leeds

- Vertical Structure of Weather over Southeast Asia, WCSSP Southeast Asia
- TerraMaris: Observational study of weather systems over western Java and surrounding seas

June 2014–December 2018 Post-Doctoral Research Assistant  
Department of Meteorology, University of Reading

- Forecasting Air-Sea Coupled Interactions in NWP of Atmospheric Tropical Extremes (FASCINATE), WCSSP Southeast Asia
- Bay of Bengal Boundary Layer Experiment (BoBBLE)
- Fundamental Influences of Large-Scale Wave Dynamics on Tropical Weather Systems

2010–2013 Associate Tutor and Marker  
University of East Anglia

Summer 2010 Summer Placement (12 weeks)  
UK Met Office – Data Assimilation and Ensembles

## Education

2010–2014 **University of East Anglia (School of Mathematics)**  
Funded by Natural Environment Research Council (NERC)  
PhD – The Madden-Julian Oscillation and the diurnal cycle over the Maritime Continent: scale interactions and modelling

2006–2010 **St John’s College, University of Oxford (Department of Physics)**  
MPhys Physics (4 year) – 2:1

1999–2006 **Ipswich School**  
Foundation scholarship  
4 A Levels: all at grade A (Physics, Mathematics, Further Mathematics, Chemistry)  
Institute of Physics, Bill Trotter Prize: Commended (for excellence in A-Level Physics Practical Investigation)  
OCR Level 3 Certificate for IT Users (CLAIT Advanced)  
11 GCSEs: all at grade A\* (Biology, Chemistry, English Language, English Literature, French, Geography, German, Latin, Mathematics, Physics, Statistics)

## Peer-reviewed publications

Peatman SC, Klingaman NP, Hodges KI (in review). West Pacific tropical cyclone-related precipitation in UK Met Office global operational forecasts. *Wea. Forecasting*.

Peatman SC, Klingaman NP (2018) The Indian Summer Monsoon in MetUM-GOML2.0: Effects of air-sea coupling and resolution. *Geosci. Model Dev.*, **11**(11), 4693–4709. <https://doi.org/10.5194/gmd-2018-197>

Peatman SC, Methven J, Woolnough SJ (2018) Isolating the effects of moisture entrainment on convectively-coupled equatorial waves in an aquaplanet GCM. *J. Atmos. Sci.*, **75**(9), 3139–3157. <https://doi.org/10.1175/JAS-D-18-0098.1>

Vinayachandran PN, Matthews AJ, Kumar KV, Sanchez-Franks A, Thushara V, George J, Vijith V, Webber BGM, Queste BY, Roy R, Sarkar A, Baranowski DB, Bhat GS, Klingaman NP, Peatman SC, Parida C, Heywood KJ, Hall R, Kent B, King EC, Nayak AA, Neema CP, Amol P, Lotliker A, Kankonkar A, Gracias DG, Vernekar S, Souza ACD, Valluvan G, Pargaonkar SM, Dinesh K, Giddings J, Joshi M (2018) BoBBLE (Bay of Bengal Boundary Layer Experiment): Ocean-atmosphere interaction and its impact on the South Asian monsoon. *Bull. Amer. Meteor. Soc.*, **99**(8), 1569–1587. <https://doi.org/10.1175/BAMS-D-16-0230.1>

Sanchez-Franks A, Kent EC, Matthews AJ, Webber BGM, Peatman SC, Vinayachandran PN (2018) Intraseasonal Variability of Air-Sea Fluxes over the Bay of Bengal during the Southwest Monsoon. *J. Climate*, **31**, 7087–7109. <https://doi.org/10.1175/JCLI-D-17-0652.1>

Birch CE, Webster S, Peatman SC, Parker DJ, Matthews AJ, Li Y, Hassim ME (2016) Scale interactions between the MJO and Maritime Continent in a convection-permitting regional climate model. *J. Climate*, **29**, 2471–2492. <http://doi.org/10.1175/JCLI-D-15-0557.1>

Peatman SC, Matthews AJ, Stevens DP (2015) Propagation of the Madden-Julian Oscillation and scale interaction with the diurnal cycle in a high-resolution GCM. *Clim. Dyn.*, **45**, 2901–2918. <http://doi.org/10.1007/s00382-015-2513-5>

Peatman SC, Matthews AJ, Stevens DP (2014) Propagation of the Madden-Julian Oscillation through the Maritime Continent and scale interaction with the diurnal cycle of precipitation. *Q. J. R. Meteorol. Soc.*, **140**, 814–825. <http://doi.org/10.1002/qj.2161>

Matthews AJ, Pickup G, Peatman SC, Clews P, Martin J (2013) The effect of the Madden-Julian Oscillation on station rainfall and river level in the Fly River system, Papua New Guinea. *J. Geophys. Res. Atmos.*, **118**, 10926–10935. <http://doi.org/10.1002/jgrd.50865>

## Peer-reviewing

Full record available at: <https://publons.com/a/673959>

Reviewed the following papers with named reviewers:

- Moron V, Robertson AW, Qian J-H and Ghil M (2015) Weather types across the Maritime Continent: from the diurnal cycle to interannual variations. *Front. Environ. Sci.* **2**:65. <http://dx.doi.org/10.3389/fenvs.2014.00065>

Reviewed for the following journals:

- Atmospheric Science Letters
- Climate Dynamics
- Journal of Advances in Modeling Earth Systems
- Journal of Atmospheric and Solar-Terrestrial Physics
- Journal of Geophysical Research – Atmospheres
- Quarterly Journal of the Royal Meteorological Society
- Monthly Weather Review

## Conference and seminar presentations

- *Atmosphere, Ocean and Climate seminar, University of East Anglia, June 2019*
- International Conference on Subseasonal to Seasonal Prediction, Boulder, CO, USA, September 2018 (poster)
- BoBBLE-SWAAMI-INCOMPASS Joint Workshop, Bangalore, India, July 2018
- Hurricanes and Tropical Meteorology, Ponte Vedra Beach, FL, USA, April 2018
- International Workshop on Monsoons, Singapore, November 2017
- IAMAS-IAPSO-IAGA, Cape Town, South Africa, August 2017 (2 posters)
- European Geosciences Union General Assembly, Vienna, Austria, April 2016
- Workshop on Intraseasonal Processes and Prediction in the Maritime Continent, Singapore, April 2016
- Lunchtime seminar, Department of Meteorology, University of Reading, November 2014
- Atmosphere, Ocean and Climate seminar, University of East Anglia, May 2013
- European Geosciences Union General Assembly, Vienna, Austria, April 2013
- Invited speaker: Post Graduate Student Evening, Scottish Centre of the Royal Meteorological Society, Edinburgh, March 2012
- Royal Meteorological Society student conferences; 2011, 2012 and 2013 (talks and posters)

## Other publications and reports

- The Indian monsoon: atmospheric dynamics, aerosol and the ocean (meeting report). *Weather* **74**(2), p.75, 2019. <http://doi.org/10.1002/wea.3264>
- Consistency checking and diagnosis of observation and background errors by the Desroziers method, September 2010, *UK Met Office* (summer placement)
- Uncertainties in anthropogenic radiative perturbations on climate: the impact of plume injection heights, April 2010, *Atmospheric Oceanic and Planetary Physics, University of Oxford* (MPhys project)

## Teaching and supervision

- Summer 2018, University of Reading, MSc project supervisor: The Madden-Julian Oscillation's influence on precipitation in Tonga
- 2014–2018, University of Reading, teacher and demonstrator: Numerical Methods for Environmental Science, Introduction to Computing
- 2013–2014, University of East Anglia, one-to-one tutoring: dynamical meteorology, fluid mechanics and mathematical biology
- 2010–2014, University of East Anglia, coursework marker: Maths for Scientists
- 2010–2014, University of East Anglia, demonstrator: Maths for Scientists, Dynamical Meteorology, Forces of Nature (practicals)

## Computing skills

Proficient in Python, Linux command line and shell scripting, Git version control, L<sup>A</sup>T<sub>E</sub>X, HTML and CSS. Also familiar with Fortran, C and IDL.

## Training

- WCRP Summer School on Climate Model Development (Atmospheric Moist Processes), Hamburg, June 2015
- Software Development for Environmental Scientists: Level 1, Reading, September 2014 and Level 2, Reading, March 2015
- NCAS Climate Modelling Summer School, Cambridge, September 2011

## Memberships

- Royal Meteorological Society
- Christians in Science

## Experience and skills

### ***Post-Doctoral Research, University of Reading, February 2016 – December 2018***

Working on the BoBBLE project on air-sea interactions in the Indian monsoon. Analysed monsoon mean state and intraseasonal variability in output from climate-length simulations of the MetUM-GOML (UM coupled to a KPP mixed layer ocean); and in forecasts of the 2016 monsoon season. Performed simulations of the KPP ocean (with no atmosphere, forced with surface fluxes), including mechanism denial experiments, to investigate the effect of phenomena such as advection and the diurnal cycle. Self-taught Iris (Python package developed by the Met Office) for data analysis and plotting.

### ***Post-Doctoral Research, University of Reading, June 2014 – February 2016***

Working on the Tropical Waves project, especially convectively-coupled equatorial waves. Analysed output from aquaplanet experiments, for which I wrote code from scratch to produce Wheeler-Kiladis diagrams, filter data and produce composites of equatorial wave structures. Performed modelling experiments which involved making changes to the way entrainment is handled by the convection scheme in the Met Office Unified Model.

### ***1<sup>st</sup> WCRP Summer School on Climate Model Development (Atmospheric Moist Processes), Hamburg, June 2015***

Two-week summer school consisting of lectures and a group practical investigation. lectures covered methods used for atmospheric parametrization schemes in models, including the boundary layer, convection, clouds and radiation. My investigation investigated the sensitivity of the ICON model to changes in the turbulent mixing length in the boundary layer scheme. The course gave me a thorough understanding of the principle behind parametrization schemes, such as convection schemes which I am investigating in my own research.

### ***NERC Short Course: Software Development for Environmental Scientists Level 2, Reading, March 2015***

Four-day NERC-funded short course covering software development concepts including code sharing and collaboration using GitHub, Object Oriented (OO) programming, OO design using class diagrams and sequence diagrams, coding standards, design patterns, exception handling and parallel processing. Since this course I have been able to write Python software which implements my own class definitions in a useful way and I have kept to consistent coding standards to aid collaboration and later editing of code.

### ***Unified Model Training, Reading, December 2014***

Three-day training course in running the Met Office Unified Model on the UK National Supercomputer (ARCHER). Learned how to configure and run the model through the UMUI on PUMA; search for and understand errors in output files; checkout the model code, make edits to it and include new branches in a model run using FCM.

### ***NERC Short Course: Software Development for Environmental Scientists Level 1, Reading, September – October 2014***

Week-long NERC-funded short course covering software development concepts including design, unit testing, version control using git, use of an integrated development environment and debugging. This culminated in a day-long project, using all the skills acquired to create a well-designed, working, tested piece of software. As a result of the course the code I use in my every-day work is more organised and I now use proper version control.

### ***Tutoring, University of East Anglia, April – May 2014***

One-to-one tutoring in dynamical meteorology, fluid mechanics and mathematical biology.

***NCAS Climate Modelling Summer School, Cambridge, September 2011***

Two-week NERC-funded summer school, covering the science behind the components of the Earth's climate system and their interactions, computational fluid dynamics, and analysis of climate experiments using the Met Office Unified Model. I contributed to a group project in which we investigated the effect of perturbing global sea surface temperatures in an atmosphere-only model, and I gave part of the group presentation describing our findings.

***PhD, University of East Anglia, October 2010 – May 2014***

Researched the relationship between the diurnal cycle and the Madden-Julian Oscillation over the Maritime Continent. Gained experience of dealing with large (up to ~500GB) high-resolution data sets; time series analysis of meteorological data, including harmonic analysis, filtering and EOF analysis; process-based analysis of data sets, linking observations to the underlying physical processes; analysis of output from a state-of-the-art climate model; programming in Python using Climate Data Analysis Tools (CDAT); improved knowledge of LaTeX and Linux. Published three papers in leading journals, two as first author, and presented research in numerous seminars, conferences and meetings.

***Associate Tutor and Marker, University of East Anglia, October 2010 – March 2013***

Demonstrator in undergraduate seminars and labs, covering Mathematics For Scientists, Dynamical Meteorology and lab experiments in Forces Of Nature (e.g., convection, eustatic sea level change and glacier flow). Gained experience of explaining concepts not just in a way that I would find useful, but adapting my explanations on-the-spot to explain the ideas in the most helpful way for each individual student. Marker of undergraduate coursework, both mathematical and essay-based.

***Summer Placement, Data Assimilation and Ensembles, UK Met Office, June – September 2010***

Implemented and tested error diagnostics used in 4-dimensional variational data assimilation (4D-Var); I learnt to use the Met Office's Unified Model, Observation Processing System, variational data assimilation (VAR) and Suite Control System user interfaces. I wrote IDL programs to analyse the results, gave a presentation and wrote up my project in LaTeX.

***Masters Project, University of Oxford, January – April 2010***

Investigated the effect on radiative forcing of smoke plume injection heights from wildfires by adapting the global climate model ECHAM5-HAM, to alter the height and shape of smoke plumes. Gained experience of designing a model sensitivity study, understanding and adapting a subroutine in a state-of-the-art climate model using Fortran, writing IDL code to analyse model output, writing up a scientific report using LaTeX and defending my work in a "mini-viva".

**Other positions and achievements**

Published chapter in *A Teacher's Guide to Science and Religion in the Classroom* (Routledge)

Secretary and Parochial Church Councillor  
Redlands Parish Church, Reading

Committee Member  
Christians in Science Reading

Workshop Leader  
Learning About Science And Religion (LASAR), University of Reading

Parochial Church Councillor  
St Peter Mancroft Church, Norwich

Secretary  
Quiz Society, University of East Anglia

Head Chapel Warden and Keeper of the Sherry  
St John's College Chapel, University of Oxford