

Professor Paul D. Williams

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Employment

2003– **University of Reading**

- Weather Research Division Leader; responsible for leading a division of 30 weather researchers (2019–22)
- Professor of Atmospheric Science (2017–)
- Associate Professor (2011–17)
- Royal Society University Research Fellow (2009–17)
- Natural Environment Research Council (NERC) Fellow (2006–09)
- Post-Doctoral Research Associate (2003–06)

1999–03 **University of Oxford**

- Senior Graduate Warden, Brasenose College; responsible for student welfare and enforcement of rules (2002–03)
- Lodge Porter, Lincoln College; responsible for security, medical and fire emergencies, assisting visitors (1999–00)
- Receptionist, Mitre Hotel; responsible for room bookings, assisting guests, handling check-in and check-out (1999)

Education and Qualifications

1999–03 **Balliol College, University of Oxford**

- DPhil in Atmospheric, Oceanic and Planetary Physics (2003)
- Thesis title: *Nonlinear interactions of fast and slow modes in rotating, stratified fluid flows*
- Supervisors: Peter L. Read and Thomas W. N. Haine

1995–99 **Lincoln College, University of Oxford**

- First-class MPhys in Physics (1999); ranked in top 5% of university cohort in Prelims and top 10% in Finals
- Major options in *Physics of Atmospheres and Oceans* and *Theoretical Physics*; minor option in *Chaos*
- *Learning Physics* module, Department of Educational Studies (1997)

1993–95 **Durham Johnston Comprehensive School**

- A-levels with grade A in Physics, Mathematics, and Further Mathematics (1995)
- A-level Special Papers with distinctions in Physics and Mathematics (1995)

1988–93 **Shotton Hall Comprehensive School**

- 10 GCSEs (1993)
- Deputy Head Boy (1992–93)

Academic Prizes

- 2019 Advances in Atmospheric Sciences (AAS) Esteemed Paper Prize (first prize; ¥6,000)
- 2018 NERC Impact Awards: Societal Impact Award (runner-up; £5,000)
- 2018 University of Reading: Research Engagement and Impact Awards (winner of “influence” category)
- 2018 UK Fluids Network: Photo and Video Competition #4 (photo competition winner; £200)
- 2018 Reading University Students’ Union (RUSU) Excellence Awards: Teaching Excellence Award (Science) (nominated)
- 2014 Times Higher Education Awards: Research Project of the Year (short-listed)
- 2014 University of Reading: Inaugural M. A. Ward Memorial Fund Public Communications Prize (first prize; £1,000)
- 2013 Institute of Mathematics and its Applications: 50th anniversary essay competition (overall winner; iPad)
- 2013 NCAS Staff Meeting: Best poster competition (overall winner out of 84 posters presented; £40)
- 2012 Leverhulme Trust: Philip Leverhulme Prize in Earth, Ocean and Atmospheric Sciences (£70,000)
- 2012 Royal Meteorological Society: Michael Hunt Award for excellence in science communication (£600)
- 2010 The Sunday Times: named as one of “the best young scientists working in Britain today”
- 2009 Royal Meteorological Society: IBM Award for Meteorological Innovation that Matters (highly commended)
- 2008 British Science Association: Perspectives competition (finalist)
- 2008 The Observer: named as one of the “greatest talents in the UK”

- 2007 National Endowment for Science, Technology and the Arts (NESTA): Crucible Fellowship
- 2005 Royal Meteorological Society: Rupert Ford Travel Award (for “outstanding young scientists”; £2,760)
- 2004 Royal Astronomical Society: Blackwell Prize for the best UK doctoral thesis in atmospheric physics (£1,000)
- 2003 Daily Telegraph: Science Writer Awards (highly commended)
- 2002 University of Oxford: Vice-Chancellors’ Fund Award (£500)
- 2002 New Scientist: Science Essay Competition (finalist)
- 1998–99 Lincoln College, University of Oxford: elected to a Scholarship (£200)
- 1997–98 Lincoln College, University of Oxford: elected to a Scholarship (£200)
- 1996–97 Lincoln College, University of Oxford: elected to an Exhibition (£100)
- 1995 Durham Johnston Comprehensive School: J. J. Egglshaw Prize for Mathematics
- 1993 Shotton Hall Comprehensive School: Sutherland Trophy for Music

Editorships

- 2019–24 Royal Meteorological Society (RMetS) Book Series Editor
- 2010–18 Editor, *Geophysical Research Letters* (handling over 400 papers annually in atmospheric science and climate)
- 2011–16 Editorial Board Member, *Philosophical Transactions of the Royal Society A*
- 2016– Founding Advisory Board Member, *Dynamics and Statistics of the Climate System* (OUP)

Research Funding Awarded

- 2019–20 PI, Heathrow Airport Centre of Excellence: *Airport infrastructure requirements for electrical propulsion systems* (£43,200)
- 2014–17 PI, Royal Society URF renewal: *Numerical and parametric errors in weather and climate models* (£343,588)
- 2016–17 Co-I, NERC Technology Proof of Concept: *Volcanic balloon-borne laboratory* (£168,029)
- 2014–15 Co-I, NERC Impact Accelerator Award: Knowledge Exchange Fellowship (£20,586)
- 2009–14 PI, Royal Society URF: *Improving predictive climate models through stochastic parameterization* (£555,926)
- 2011–13 PI, Royal Society Research Grant: *New insights into atmospheric turbulence* (£49,050)
- 2013 PI, RAS Tomkins Instrumentation Grant: *Balloon-borne measurements of thunderstorm electricity* (£300)
- 2006–09 PI, NERC Fellowship: *The role of unresolved processes in climate and climate change* (£256,190)
- 2009 PI, Nuffield Foundation Undergraduate Bursary: *Atmospheric flow transitions under the influence of noise* (£1,440)

Teaching

- 2006– Convenor, BSc Part II module *Numerical Methods for Environmental Science*, Reading (lectures, classes, assessment)
- 2020 Guest lecture, MSc module *Climate Services and Climate Impact Modelling*, Reading
- 2019 Invited speaker, Short Course, *Science communication on hard mode*, EGU General Assembly, Vienna
- 2017–19 Co-presenter, Weather and Climate Discussion (WCD), BSc Part III and MSc module *General Studies*, Reading
- 2007 private tuition in A-level Physics (30 contact hours)
- 2002 BA/MPhys first-year tutorials in electromagnetism and mathematics, Lincoln College Oxford
- 2000 BA/MPhys third-year tutorials in condensed-matter physics, Lincoln College Oxford
- 1997 Part-time physics teacher, Wesley Green Middle School, Blackbird Leys, Oxford

Supervision

- 2020–23 Isabel Smith (PhD): *Using high-resolution climate models to predict increases in atmospheric turbulence*
- 2020–23 Vichawan (“Print”) Sakulsupich (PhD): *Global and regional hazards to aviation from volcanic gases*
- 2020–21 Lu Jiang (BSc): *A new Richardson number diagnostic for clear-air turbulence*
- 2018–22 Cathie Wells (MRes/PhD): *Reformulating aircraft routing algorithms to improve flight routes*
- 2018–21 Mark Prosser (PhD): *Using aviation meteorology to improve aircraft safety*
- 2018–21 Niraj Agarwal (PhD): *Data-driven reduced order modelling of multiscale oceanic variability*
- 2019–20 Rachel Cheyne (BSc): *Does ENSO affect global clear-air turbulence?*
- 2019 Caitlin Rixey (MSc): *Trends in the Northern Hemisphere jet stream at aircraft cruising altitudes*
- 2018 Lauren Hopkinson (MSc): *Aviation impacts of African smoke emissions over the tropical Atlantic*
- 2017–21 Rhys Thompson (MRes/PhD): *Diffusion models of Earth’s outer radiation belt using stochastic parameterisations*
- 2017–18 Leonardo Ripoli (MRes): *Constructing parameterisations for GFD systems: a comparative approach*
- 2017–18 Simon Lee (MMet): *Jet stream trends in the upper atmosphere*
- 2016–17 Martin Airey (PDRA): *Volcanic balloon-borne laboratory*
- 2016–17 Treve Nicol (BSc): *Vibrating wire collector for in-cloud sampling*
- 2016 Hannifer Ha (MSc): *An investigation of turbulent coherent structures at Hong Kong International Airport*

- 2015–18 Luke Storer (PhD): *Multi-model ensemble predictions of atmospheric turbulence*
- 2014–17 Alastair Gregory (PhD): *Multilevel ensemble prediction of weather and climate*
- 2013–15 Nicola Howe (PDRA): *Stochastic parameterisation in physical oceanography*
- 2012–15 Graeme Marlton (PhD): *Comparison of radiosonde observations of turbulence with model predictions*
- 2010–13 Julie Chenery (MPhil): *Stochastic eddy mixing schemes in ocean models*
- 2011 Christopher Kelsall (MSc): *Organised jet formation in rotating fluids*
- 2006–11 Tom Jacoby (DPhil): *Inertia–gravity wave generation by boundary layer instabilities*
- 2006–10 Judy Simpson (DPhil): *Finite dimensional dynamics in baroclinic chaos*
- 2010 Rob Smith (MSc): *Minimising time-stepping errors in numerical models of the atmosphere and ocean*
- 2009 Luke Boxall (BSc vacation project): *Atmospheric flow transitions under the influence of noise*

Doctoral Theses Examined

- 2019 Muhamad Najib Zakaria, U. Leeds: *Staggered finite-difference wave solutions in domains with boundaries* (external)
- 2019 Holly Turner, U. Reading: *Wind profile and boundary layer effects on orographic gravity wave drag* (internal)
- 2018 Kashyapa Naren Athreya, NTU Singapore: *Gravity waves generated by thunderstorms* (external)
- 2018 Eoghan Harney, University College Dublin: *Laplace transform integration scheme in atmospheric models* (external)
- 2018 James Shaw, U. Reading: *Numerical representation of mountains in atmospheric models* (internal)
- 2017 Maria Vittoria Guarino, U. Reading: *Mountain wave breaking in atmospheric flows with directional wind shear* (internal)
- 2015 Simon Thomas, U. Reading: *On the heliospheric modulation of galactic cosmic rays* (internal)
- 2014 Angus Ferraro, U. Reading: *Atmospheric responses to geoengineering in the stratosphere* (internal)
- 2012 Flora MacTavish, Imperial College London: *The application of adaptive mesh techniques in oceanography* (external)

PhD Monitoring Committees

- 2019–22 Shammi Akhter: *Controls on the track and intensity of tropical cyclones in the Bay of Bengal*
- 2016–19 Andrea Gabrielski: *Diabatic heating and tropical circulation* (chair)
- 2015–18 Holly Turner: *Wind profile effects on gravity wave drag and their impact on the global atmospheric circulation*
- 2014–17 James Shaw: *Numerical representation of mountains in atmospheric models* (chair)
- 2013–16 Maria Vittoria Guarino: *Mountain wave breaking in atmospheric flows*
- 2011–14 Simon Thomas: *Long-term solar variability inferred from cosmic ray records* (chair)
- 2010–13 Angus Ferraro: *The impact of potential geo-engineering schemes*

Learned Societies

- 2011– Fellow of the Institute of Mathematics and its Applications (FIMA)
- 2011– Fellow of the Higher Education Academy (FHEA)
- 2010– Fellow of the Institute of Physics (FInstP)
- 2008– Fellow of the Royal Meteorological Society (FRMetS)
- 2004– Fellow of the Royal Astronomical Society (FRAS)
- 2009– Member of the American Meteorological Society
- 2004– Member of the American Geophysical Union
- 2004– Member of the European Geosciences Union

Committee Membership

- 2019– Senator, University of Reading Senate
- 2018– Member, American Geophysical Union (AGU) Nonlinear Geophysics Focus Group (NG) Executive Committee
- 2018–21 Member, AGU Robert C. Cowen Award for Sustained Achievement in Science Journalism Selection Committee
- 2017 Member, American Physical Society (APS) Topical Group on the Physics of Climate (GPC) Nominating Committee
- 2016 Member, Research Fellowship Internal Review Panel, University of Reading
- 2013–14 Member, Royal Society Equality and Diversity Advisory Network (EDAN) Research Fellows Panel
- 2011–13 Expert Reviewer, Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5)
- 2012– Member, RMetS Weather And Music Special Interest Group (2012–) and Steering Committee (2015–)
- 2012 Invited participant, roundtable discussion for Royal Society report on Science as an Open Enterprise
- 2009–12 Honorary Secretary, Institute of Physics Environmental Physics Group
- 2004–09 Ordinary Member, Institute of Physics Environmental Physics Group
- 2008–10 Member, American Geophysical Union Books Board
- 1998–99 Environment Officer, Junior Common Room, Lincoln College, University of Oxford

Advisory Board Membership for Major Research Programmes

2019–22 External Advisory Board member, NEANIAS project, a €5.6m Horizon 2020 consortium of 20 partners from 9 countries

Funding Agency Panel Membership

2018–21 Member, European Science Foundation (ESF) College of Expert Reviewers

2017–19 Member, UK National Academies' Global Challenges Research Fund (GCRF) Networking Grants Review Panel

2013–18 Member, Royal Society Newton International Fellowship Panel

Grant Applications Reviewed

2020 Engineering and Physical Sciences Research Council (EPSRC) Standard Grant

2020 Deutscher Akademischer Austauschdienst (DAAD) Short-Term Research Grant

2019 External Evaluator, European Research Council (ERC) Earth System Science Panel (PE10) Starting Grant

2019 Netherlands Organisation for Scientific Research (NWO) Veni Grant

2019 Belgian public research council (FWO) Postdoctoral Fellowship

2010 US National Science Foundation (NSF) Collaborative Proposal

2007 Royal Society of New Zealand (RSNZ) Marsden Fund Standard Grant

2006 Natural Environment Research Council (NERC) Knowledge Transfer Grant

Book Proposals Reviewed

2020 Long-term Changes of the Earth's Climate (Elsevier)

2020 Hydroclimatic Extremes in the Middle East and North Africa (Elsevier)

2017 GeoMath: Vital Mathematical Methods for Earth Sciences (IOP Publishing)

2011 Mathematics and Climate (Society for Industrial and Applied Mathematics; SIAM)

2010 Principles of Environmental Physics (4th edition; Elsevier)

Scientific Meetings Organised

2020 Co-convener, Nonlinear and Stochastic Dynamics of the Earth System, EGU General Assembly, Vienna (online)

2019 Primary convener, Numerical and Analytic Techniques for Modeling Multiscale Systems, AGU Fall Meeting, San Francisco

2019 Co-convener, Nonlinear and Stochastic Dynamics of the Earth System, EGU General Assembly, Vienna

2018 Organising committee, Sixth Annual Meeting of CliMathNet, University of Reading

2018 Organiser and chair, RMetS Evening Lecture, Ancient Skies: The Music of Weather from the Geologic Past, Reading

2018 Co-convener, New model and data-based approaches to study climate behavior, EGU General Assembly, Vienna

2017 Primary convener, Music and the Geosciences, AGU Fall Meeting, New Orleans

2017 Primary convener, Stochastic Modeling in Atmosphere, Ocean, and Climate Dynamics, AGU Fall Meeting, New Orleans

2017 Organising committee, Fifth Annual Meeting of CliMathNet, University of Reading

2017 Co-convener, Complexity in Geosciences, EGU General Assembly, Vienna

2017 Local organiser, two-day NAG Fortran Modernization Workshop, University of Reading

2016 Co-convener, Stochastic Modeling in Atmosphere, Ocean, and Climate Dynamics, AGU Fall Meeting, San Francisco

2016 Co-convener, Chaotic and Stochastic Geosciences, EGU General Assembly, Vienna

2016 Organising committee, Royal Society UK–Canada Frontiers of Science meeting, Whistler, Canada

2015 Co-convener, Stochastic Modeling in Atmosphere, Ocean, and Climate Dynamics, AGU Fall Meeting, San Francisco

2015 Program committee, Interdisciplinary Symposium on Complex Systems, Grenoble, France

2015 Co-convener, Chaotic and Stochastic Geosciences, EGU General Assembly, Vienna

2014 Co-convener, Stochastic Approaches to Nonlinear Geophysical Systems, AGU Fall Meeting, San Francisco

2014 Co-convener, Chaotic and Stochastic Geosciences, EGU General Assembly, Vienna

2014 Program committee, Interdisciplinary Symposium on Complex Systems, Florence, Italy

2013 Co-convener, Unification of Alternative Models in Climate and Geophysics, AGU Fall Meeting, San Francisco

2013 Co-organiser, EuroMech Colloquium on Modelling Atmospheric and Oceanic Flows, Berlin

2013 Organiser, RMetS national meeting, Should Weather and Climate Prediction Models be Deterministic or Stochastic?

2013 Program committee, Workshop on Stochastic Modelling and Computing for Weather and Climate Prediction, Oxford

2013 Program committee, Interdisciplinary Symposium on Complex Systems, Prague, Czech Republic

2012 Co-convener, Gravity Waves in the Atmosphere and Ocean, AGU Fall Meeting, San Francisco

2012 Co-organiser, Summer Workshop on Stochastic Flows and Climate Modeling, Aspen Center for Physics, USA

- 2012 Program committee, Interdisciplinary Symposium on Complex Systems, Kos, Greece
- 2011 Chair of organising committee, IMA Conference on the Mathematics of the Climate System, University of Reading
- 2011 Program committee, Interdisciplinary Symposium on Complex Systems, Halkidiki, Greece
- 2010 Co-organiser, one-day meeting on Spectral Imaging at Photonex 2010, Telford
- 2009 Organiser and chair, IOP one-day meeting on Computer Simulation and the Environment, London (budget: £1,500)
- 2007 Organiser and chair, IOP public evening lecture on the IPCC Fourth Assessment Report, London (budget: £1,700)

Invited Research Visits

- 2017 Max Planck Institute for the Physics of Complex Systems, Dresden, Germany (two weeks)
- 2014 Kavli Institute for Theoretical Physics, University of California, Santa Barbara, USA (two months)
- 2013 Meteorology group, Faculty of Mathematics and Physics, University of Ljubljana, Slovenia (one week)
- 2013 Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, University of Cambridge (two months)
- 2012 Aspen Center for Physics, Colorado, USA (three weeks)
- 2012 Programme Participant, Isaac Newton Institute for Mathematical Sciences, University of Cambridge (three months)
- 2010 Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, University of Cambridge (four months)
- 2008 Kavli Institute for Theoretical Physics, University of California, Santa Barbara, USA (three months)
- 2006 Atmospheric Physics group, Department of Physics, University of Toronto, Canada (one month)
- 2006 Laboratoire d'Océanographie et du Climat (LOCEAN), Université Paris VI, France (one month)

Travel Funding Awarded

- 2017 Royal Society and NRF Singapore: Commonwealth Science Conference, Singapore (£550 + hotel + registration)
- 2014 Kavli Institute: Wave–Flow Interaction in Geophysics, Climate, Astrophysics, and Plasmas (\$4,143.50)
- 2013 Isaac Newton Institute: Mathematics for the Fluid Earth (£1,525)
- 2012 Isaac Newton Institute: Multiscale Numerics for the Atmosphere and Ocean (£1,720)
- 2010 Isaac Newton Institute: Mathematical and Statistical Approaches to Climate Modelling and Prediction (£6,664)
- 2010 European Geosciences Union General Assembly: Adrian Gill Travel Award (registration waiver)
- 2009 European Meteorological Society Annual Meeting: Young Scientists Travel Award (€300 + registration waiver)
- 2009 European Geosciences Union General Assembly: Young Scientists Travel Award (registration waiver)
- 2008 Kavli Institute: Physics of Climate Change (\$5,370)
- 2008 Royal Astronomical Society: Grant for Studies in Astronomy and Geophysics (£1,700)
- 2006 Royal Society: Conference Grant (£1,170)
- 2003 Institute of Physics: C. R. Barber Trust Fund (£100)
- 2003 Royal Meteorological Society: Legacies Fund (£300)

Invited Talks (Reimbursed)

- 2020 European Business Aviation Association (EBAA) Business Aviation Risk event, Churchill College Cambridge
- 2019 Dutch Meteorological Society Autumn Symposium on Atmospheric Circulation and Climate Changes, Utrecht University
- 2019 Workshop on Time Filters and Predictive Accuracy, University of Pittsburgh, USA
- 2019 Royal Schiphol Group Aviation Vision 2050 Workshop, Schiphol Airport, Amsterdam, The Netherlands
- 2019 International Air Transport Association (IATA) Safety and Flight Operations Conference, Barcelona, Spain
- 2018 Helitech International helicopter expo and conference, Amsterdam, The Netherlands
- 2018 European Physical Society (EPS) Energy Group annual meeting, Barcelona, Spain
- 2018 Sixth Annual Meeting of CliMathNet, University of Reading
- 2018 China–UK Symposium on Meteorology and Environment, Nanjing University of Information Science and Technology, China
- 2017 CNRS Workshop on Interdisciplinary Geo-Astro Fluid Dynamics, Paris
- 2017 Workshop on Climate Fluctuations and Non-equilibrium Statistical Mechanics, Max Planck Institute, Dresden, Germany
- 2017 Winter School on Diversity of Planetary Circulation Regimes in our Solar System and Beyond, Les Houches, France
- 2016 Fifth Workshop on Aviation Meteorology, Jeju Island, South Korea
- 2016 NAV CANADA North Atlantic Operational Forum, Toronto, Canada
- 2016 Workshop on Turbulence and Waves in Flows Dominated by Rotation, NCAR, Colorado, USA
- 2016 Workshop on Numerical Analysis and Predictability of Fluid Motion, University of Pittsburgh, USA
- 2015 Minisymposium on nonlinear and stochastic weather and climate, XXXV Dynamics Days Europe, Exeter
- 2015 Workshop on Nonlinear Dynamics, Extremes, Geohazards and Predictability of the Earth System, Hamburg
- 2015 Conference on Complex Networks and Climate Variability, Vienna, Austria
- 2014 Fourth Workshop on Aviation Meteorology, Yonsei University, Seoul, South Korea
- 2014 Alpine Summer School on Dynamics, Stochastics & Predictability of the Climate System, Valsavarenche
- 2014 Royal Society Research Fellows Conference, London

- 2013 RIMS International Conference on Zonal Flows in Geophysical and Astrophysical Fluids, Kyoto, Japan
- 2013 Symposium on Stochastic Parameterisation in Weather and Climate Models, Bonn, Germany
- 2013 Workshop on Stochastic Modelling and Computing for Weather and Climate Prediction, Oxford
- 2010 EuroScience Open Forum (ESOF), Turin

Invited Talks (Unreimbursed)

- 2020 Asia Oceania Geosciences Society (AOGS) 17th Annual Meeting, Hongcheon, South Korea (cancelled)
- 2020 American Meteorological Society 100th Annual Meeting, Boston, Massachusetts, USA
- 2019 European Meteorological Society Annual Meeting, Technical University of Denmark (DTU), Copenhagen, Denmark
- 2019 Asia Oceania Geosciences Society (AOGS) 16th Annual Meeting, Singapore (declined)
- 2018 Asia Oceania Geosciences Society (AOGS) 15th Annual Meeting, Honolulu, Hawaii, USA
- 2018 Royal Meteorological Society Student and Early Career Scientist Conference, University of York (declined)
- 2018 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan (declined)
- 2016 American Geophysical Union Fall Meeting, San Francisco, California, USA
- 2015 Conference on Complex Systems, Arizona, USA, Complex Systems Digital Campus World e-Conference
- 2014 American Geophysical Union Fall Meeting, San Francisco, California, USA
- 2014 Royal Meteorological Society national meeting on Aviation and Turbulence in the Free Atmosphere, London
- 2012 American Geophysical Union Fall Meeting, San Francisco, California, USA
- 2012 Royal Meteorological Society national meeting on Quantifying Uncertainties in Climate Science, London
- 2011 American Geophysical Union Fall Meeting, San Francisco, California, USA
- 2011 European Geosciences Union General Assembly, Vienna, Austria
- 2010 European Geosciences Union General Assembly, Vienna, Austria
- 2006 European Geosciences Union General Assembly, Vienna, Austria
- 2005 Astronomy and Geophysics meeting, Royal Astronomical Society, London

Seminars and Colloquia (Reimbursed)

- 2019 NCAS-Climate science meeting, University of Reading
- 2019 Institute for Geophysical Research (IGR) and Applied Math Institute (AMI) joint seminar, University of Alberta, Canada
- 2019 Applied and Computational Mathematics seminar, University College Dublin, Ireland
- 2019 Evening lecture, Royal Meteorological Society Scottish Local Centre, University of Edinburgh
- 2018 Evening lecture, Royal Meteorological Society South West Local Centre, Bath Royal Literary and Scientific Institution
- 2018 Evening lecture, Royal Meteorological Society West Midlands Local Centre, University of Birmingham
- 2018 Evening lecture, Royal Meteorological Society Welsh Local Centre, Cardiff University
- 2018 Institute of Atmospheric Physics seminar, German Aerospace Center (DLR), Oberpfaffenhofen, Germany
- 2017 Evening lecture, Royal Meteorological Society North East Local Centre, Durham University
- 2017 Seminar on Climate Fluctuations and Non-equilibrium Statistical Mechanics, Max Planck Institute, Dresden, Germany
- 2017 Evening lecture, Royal Meteorological Society Yorkshire Local Centre, University of Leeds
- 2017 Engineering Modelling and Simulation Group seminar, University of the West of England, Bristol
- 2016 Evening lecture, Royal Meteorological Society North West Local Centre, Manchester Metropolitan University
- 2016 NCAS-Climate science meeting, University of Reading
- 2016 Mathematics of Planet Earth (MPE) Centre for Doctoral Training (EPSRC CDT) seminar, Imperial College London
- 2015 Fluids and MHD seminar, School of Mathematics, University of Leeds
- 2015 Numerical Analysis seminar, Department of Mathematical Sciences, University of Bath
- 2014 Mathematics seminar, Department of Mathematics and Statistics, University of Reading
- 2014 Department of Atmospheric Sciences colloquium, Yonsei University, Seoul, South Korea
- 2014 Non-linearity and Complexity Research Group seminar, Aston University
- 2013 Department of Meteorology seminar, University of Reading
- 2013 Atmosphere, Ocean and Climate Seminar, School of Environmental Sciences, University of East Anglia
- 2013 Faculty of Mathematics and Physics seminar, University of Ljubljana, Slovenia
- 2013 Astronomy Unit seminar, School of Physics and Astronomy, Queen Mary University of London
- 2013 NCAS-Climate science meeting, University of Reading
- 2013 Atmospheric Physics seminar, Department of Physics, Imperial College London
- 2012 Physics colloquium, Aspen Center for Physics, USA
- 2012 Multiscale Numerics for the Atmosphere and Ocean seminar, Isaac Newton Institute, Cambridge
- 2011 Meteorologische Kolloquium, Institut für Atmosphäre und Umwelt, Universität Frankfurt, Germany
- 2011 Applied Mathematics seminar, School of Engineering, Computing and Mathematics, University of Exeter
- 2009 Physical Oceanography and Climate seminar, National Oceanography Centre, Southampton
- 2008 Physics of Climate Change seminar, University of California, Santa Barbara, USA

2008 Applied Modelling and Computation Group seminar, Imperial College London
 2007 Geophysical and Nonlinear Fluid Dynamics seminar, University of Oxford
 2006 Atmospheric Physics seminar, Department of Physics, University of Toronto, Canada
 2006 Fluid Mechanics seminar, Department of Applied Mathematics and Theoretical Physics, University of Cambridge
 2006 Climatic Research Unit seminar, University of East Anglia
 2006 Laboratoire de Météorologie Dynamique (LMD) seminar, Ecole Normale Supérieure, Paris, France
 2006 Laboratoire des Écoulements Géophysiques et Industriels (LEGI) seminar, Grenoble, France
 2006 Atmospheric Physics seminar, Department of Physics, Imperial College London
 2005 Applied Mathematics Seminar, Department of Mathematics, Keele University
 2004 European Centre for Medium-range Weather Forecasts seminar, Reading
 2004 Geophysical and Nonlinear Fluid Dynamics seminar, University of Oxford
 2004 Department of Meteorology seminar, University of Reading
 2002 Department of Earth and Planetary Sciences seminar, Johns Hopkins University, Baltimore, USA
 2001 Atmospheric, Oceanic and Planetary Physics vacation seminar, University of Oxford

Conference and Workshop Talks

2020 3rd Environmentally Compatible Air Transport System (ECATS) Conference, Gothenburg (online)
 2020 Asia Oceania Geosciences Society (AOGS) 17th Annual Meeting, Hongcheon, South Korea (cancelled)
 2020 EUMETNET/ECMWF Workshop on Aircraft Weather Observations and their Use, ECMWF, Reading
 2020 American Meteorological Society 100th Annual Meeting, Boston, Massachusetts, USA
 2019 American Geophysical Union Fall Meeting, San Francisco, California, USA
 2019 Foreign and Commonwealth Office project workshop on Delivering Training in Climate Services, University of Reading
 2019 UK Fluids Conference, University of Cambridge
 2019 RMetS/NCAS Atmospheric Science Conference, University of Birmingham (plenary speaker)
 2019 5th OpenIFS Workshop, University of Reading
 2019 European Geosciences Union General Assembly, Vienna, Austria
 2018 SPARC/FISAPS Workshop on Atmospheric Turbulence, Leibniz Institute of Atmospheric Physics, Kühlungsborn, Germany
 2018 3rd Turbulence Impact Mitigation Workshop, The MITRE Corporation, McLean, Virginia, USA
 2018 4th National Climate Dynamics Workshop, University of Oxford
 2018 Asia Oceania Geosciences Society (AOGS) 15th Annual Meeting, Honolulu, Hawaii, USA
 2017 American Geophysical Union Fall Meeting, New Orleans, Louisiana, USA
 2017 World Meteorological Organization (WMO) Aeronautical Meteorology Scientific Conference, Toulouse, France
 2017 Challenger Society Ocean Modelling Group Meeting, Met Office, Exeter
 2017 Third international conference on Advances in Extreme Value Analysis and Application to Natural Hazards, Southampton
 2017 CliMathNet Fifth Annual Meeting, University of Reading
 2017 Meeting on New Technologies for In Situ Volcanic Plume Monitoring, University of Oxford
 2017 Royal Society Meeting of Minds Conference, London
 2017 European Geosciences Union General Assembly, Vienna, Austria
 2017 American Meteorological Society 97th Annual Meeting, Seattle, Washington, USA
 2016 American Geophysical Union Fall Meeting, San Francisco, California, USA
 2016 Joint meeting, British Computer Society Fortran Specialist Group and IoP Computational Physics Group, London
 2016 Second General Assembly of the Maths Foresees EPSRC Network, University of Edinburgh
 2015 American Geophysical Union Fall Meeting, San Francisco, California, USA
 2015 Challenger Society Ocean Modelling Group Meeting, Corpus Christi College, Cambridge
 2015 Expert panel discussion member, Science communication workshop, NCAS conference, York
 2015 CliMathNet Third Annual Meeting, University of Bath
 2015 American Meteorological Society 20th Conference on Atmospheric and Oceanic Fluid Dynamics, Minneapolis, USA
 2015 First General Assembly of the Maths Foresees EPSRC Network, University of Leeds
 2015 Stochastic Parametrisation Workshop, European Centre for Medium-range Weather Forecasts, Reading
 2015 Dynamics of Rotating Fluids meeting, University College London
 2014 European Meteorological Society 14th Annual Meeting, Prague
 2014 World Weather Open Science Conference, Montréal, Canada
 2014 Institute of Physics Environmental Physics Group Environmental Physics Day, London
 2013 American Geophysical Union Fall Meeting, San Francisco, California, USA
 2013 Town Hall meeting on Maths, Nonlinear Geophysics and Planet Earth, AGU Fall Meeting, San Francisco, USA
 2013 Grantham Institute Workshop on Numerical Methods for Geophysical Fluid Dynamics, Imperial College London
 2013 EuroMech Colloquium on Modelling Atmospheric and Oceanic Flows, Berlin, Germany
 2013 European Meteorological Society 13th Annual Meeting, University of Reading
 2013 European Geosciences Union General Assembly, Vienna, Austria

- 2013 American Meteorological Society 93rd Annual Meeting, Austin, Texas, USA
- 2012 Royal Society Networking Nations UK–Spain Joint Scientific Meeting, London
- 2012 European Meteorological Society 12th Annual Meeting, Łódź, Poland
- 2012 Canadian Meteorological and Oceanographic Society 46th Congress, Montréal, Canada
- 2012 European Geosciences Union General Assembly, Vienna, Austria
- 2011 Gung-Ho meeting on the explicit time-stepping work package, Imperial College London
- 2011 Seventh International Symposium on Stratified Flows, Rome, Italy
- 2011 Workshop on Hierarchical Modeling of Climate, International Centre for Theoretical Physics, Trieste, Italy
- 2011 Royal Meteorological Society Conference, University of Exeter
- 2011 American Meteorological Society 18th Conference on Atmospheric and Oceanic Fluid Dynamics, Spokane, USA
- 2011 9th International SRNWP Workshop on Nonhydrostatic Modelling, Bad Orb, Germany
- 2011 Chapman Conference on Atmospheric Gravity Waves and Their Effects on General Circulation and Climate, Hawaii
- 2011 Dynamics of Rotating Fluids meeting, University College London
- 2010 Uncertainty in Climate Prediction: Models, Methods and Decision Support, Isaac Newton Institute, Cambridge
- 2010 Career Development Workshop for Grade 6 Researchers, School of Mathematical and Physical Sciences, U. Reading
- 2010 Workshop on Mathematical Theory and Modelling in Atmosphere–Ocean Science, Oberwolfach, Germany
- 2010 Challenger Society Ocean Modelling Group Meeting, National Oceanography Centre, Southampton
- 2010 Stochastic Methods in Climate Modelling workshop, Isaac Newton Institute, Cambridge
- 2010 FAMOUS workshop, University of Reading
- 2010 Wave–Flow Interactions Network 3rd annual meeting, University of St Andrews
- 2010 National Centre for Atmospheric Science Early Career Research Forum, York
- 2009 American Geophysical Union Fall Meeting, San Francisco, California, USA
- 2009 8th International SRNWP Workshop on Nonhydrostatic Modelling, Bad Orb, Germany
- 2009 European Meteorological Society 9th Annual Meeting, Toulouse, France
- 2009 MOCA-09: IAMAS, IAPSO and IACS Joint Assembly, Montréal, Canada
- 2009 Wave–Flow Interactions Network 2nd annual meeting, Edinburgh
- 2009 European Geosciences Union General Assembly, Vienna, Austria
- 2008 Workshop on Stochastic and Probabilistic Methods for Atmosphere, Ocean and Climate Dynamics, Victoria, Canada
- 2008 Workshop on Teaching Weather and Climate Using Laboratory Experiments, University of Chicago, USA
- 2008 European Geosciences Union General Assembly, Vienna, Austria
- 2008 British Council China/UK Workshop on Modelling Climate Variability and Change, Met Office, Exeter
- 2008 National Endowment for Science, Technology and the Arts (NESTA) Crucible meeting, Stockport
- 2008 Dynamics of Rotating Fluids meeting, University College London
- 2007 Workshop on Stochastic Dynamical Systems and Climate Modelling, Banff, Canada
- 2006 MFO Workshop on Mathematical Theory and Modelling in Atmosphere–Ocean Science, Oberwolfach, Germany
- 2006 Spontaneous Imbalance Workshop: Perspectives from Atmospheric and Oceanic Dynamics, Seattle, USA
- 2006 NEMO Users Meeting, Université Pierre et Marie Curie, Paris, France
- 2005 2nd Rapid Climate Change Annual Science Meeting, Swansea University
- 2005 IPSL/CGAM Workshop on Tropical Climate, University of Reading
- 2005 Dynamics of Rotating Fluids meeting, University College London
- 2004 Institute of Physics Environmental Physics Group Members Day, London
- 2003 EGS–AGU–EUG Joint Assembly, Nice, France
- 2003 Nonlinear Waves in Fluids workshop, Department of Applied Mathematics, Loughborough University
- 2001 European Geophysical Society XXVIth General Assembly, Nice, France
- 2001 10th Annual Oxford/Cambridge Applied Mathematics Meeting, University of Cambridge

Engagement with the Media

- 2019 Short film about my clear-air turbulence research shown at *AGU Cinema* during the Fall Meeting, San Francisco
- 2018 Two of my studies appear in Carbon Brief’s list of the top 25 climate papers with the most media coverage in 2017
- 2017 Speaker at American Geophysical Union press conference, New Orleans, on using music to advance geoscience research
- 2013 Speaker at European Geosciences Union press conference, Vienna, on impacts of climate change

- 2004– 581 media reports about my research, including *Flight International* (14 April 2020), *Daily Mail* (13 February 2020; 9 August 2019; 4 October 2017; 7 April 2017; 26 August 2016; 25 March 2016; 10 February 2016; 7 July 2015; 10 April 2013; 28 September 2011), *The Independent* (9 February 2020; 6 April 2017; 10 February 2016), *Geographical* (December 2019), *The Times* (4 September 2019; 9 August 2019; 21 February 2019; 6 April 2017; 7 July 2015), *Der Spiegel* (24 August 2019), *New York Times* (22 August 2019; 21 June 2017; 8 September 2014; 16 April 2013), *The Guardian* (9 August 2019; 19 February 2018; 29 March 2016; 10 February 2016; 20 July 2015; 10 April 2013; 4 February 2011), *The Daily Express* (9 August 2019; 4 October 2017; 26 March 2016), *The Weather Channel* (8 August 2019), *The Daily Telegraph* (8 August 2019; 4 October 2017; 6 April 2017; 10 February 2016; 7 July 2015; 9 April 2013; 1 October 2008), *Washington Post* (7 August 2019; 4 July 2017; 6 April 2017), *Global Television Network Canada* (12 July 2019), *The Associated Press* (12 July 2019), *National Geographic* (22 February 2019; 8 April 2013), *Financial Times* (31 December 2018; 9 April 2013; 23 September 2011; 19 March 2004), *Planet Earth magazine* (Autumn/Winter 2018; Autumn/Winter 2017; Summer 2004), *Times Higher Education* (10 May 2018; 3 December 2009), *BBC Focus Magazine* (March 2018), *The Atlantic* (17 December 2017; 9 July 2015), *Air & Space Smithsonian Magazine* (December 2017 / January 2018), *China Daily* (20 October 2017), *IFL Science* (6 October 2017; 11 February 2016), *Fox News* (5 October 2017), *CBS Miami* (5 October 2017), *The Daily Mirror* (4 October 2017; 25 March 2016), *Travel Weekly* (28 August 2017; 23 May 2016), *El País* (28 August 2017; 24 October 2016), *BBC News website* (24 August 2017; 10 February 2016; 9 April 2013; 6 October 2008), *South China Morning Post* (7 April 2017), *USA Today* (6 April 2017), *Forbes* (6 April 2017), *New Scientist* (6 April 2017; 13 April 2013; 11 October 2008; 29 November 2003), *Royal Society Year in Review* (31 March 2017), *The World Economic Forum* (27 September 2016), *The Observer* (11 September 2016), *UN Climate Change Newsroom* (8 August 2016), *The Daily Star* (22 July 2016), *The Huffington Post* (9 March 2016; 10 February 2016), *CNN* (25 February 2016), *The Sunday Telegraph* (14 February 2016), *The Sun* (10 February 2016), *Newsweek.com* (10 February 2016), *El Mundo* (10 February 2016), *The Toronto Star* (22 December 2015), *Psychologie Heute* (October 2015), *Nature* (9 December 2004), *BBC Radio 4* (13 May 2004)
- 2018 Key on-screen contributor to Channel 4 documentary *The World's Wildest Weather*
- 2017 Interviewed about music and the geosciences on *AGU TV*; the interview was shown during the AGU Fall Meeting in the Ernest N. Morial Convention Center, New Orleans and in several nearby hotels
- 2017 Key on-screen contributor to Channel 4 documentary *Britain's Wildest Weather*
- 2016 Key on-screen contributor to NBCUniversal documentary *Super Scary Plane Landings*, which has aired in the UK on Channel 5 and worldwide
- 2015 Key on-screen contributor to Discovery Channel documentary *Terror in the Skies: Air Asia and Beyond*, which has aired in more than 220 countries and territories
- 2011– TV appearances include BBC Newsroom Live on *BBC News Channel* (12 July 2019), *BBC 1 South Today Evening News* (6 October 2017; 10 February 2016), *Wake Up on WIVB* (6 October 2017), *Stirile Pro TV* on *Pro TV Romania* (4 October 2017), *Business Insider* (10 September 2017; 7 September 2017), *World News Tonight* on *American Broadcasting Company ABC* (7 August 2017), *Good Morning America* on *American Broadcasting Company ABC* (7 August 2017), *Central Television* on *NTV Russia* (3 June 2017; 6 May 2017), *DR2 Dagen* on *Danish Broadcasting Corporation DR2* (8 May 2017), *This Morning* on *CBS* (2 May 2017), *Global News Canada* (8 April 2017), *Insight* on *TRT World* (26 September 2016), *Daily Planet* on *Discovery Channel Canada* (16 September 2016), *AMHQ* on *The Weather Channel* (18 February 2016), *ITV News Meridian* (10 February 2016), *BBC World News* (10 February 2016), *Sky News* (30 November 2015; 14 September 2015; 14 February 2014), *BBC News Channel* (9 November 2015; 9 April 2013), *ITV London News* (8 July 2015), *CNN US and International editions* (17 July 2014), *CNN* (18 February 2014), *The Weather Network* (24 October 2011)
- 2016 Study on flight times used as a question on prime-time German TV quiz show *Wer Weiss Denn Sowas?*

- 2008– Radio appearances include The Paul Hudson Weather Show on *BBC Radio Humberside* (15 February 2020; 7 October 2017), The Phil Kennedy Drive Time Show on *BBC Radio Berkshire* (13 February 2020; 4 October 2017; 12 July 2016), Blueprint For Living on *Australian Broadcasting Corporation Radio National* (7 September 2019), Newshour on *BBC World Service* (10 August 2019; 10 February 2016), The Newsroom on *BBC World Service* (10 August 2019), Newsdrive on *BBC Radio Scotland* (9 August 2019; 4 October 2017; 9 April 2013), Up All Night on *BBC Radio 5 Live* (13 July 2019), The Current on *CBC Radio 1* (12 July 2019), The Andrew Peach Show on *BBC Radio Berkshire* (19 June 2019), The Sarah Walker Show on *BBC Radio Berkshire* (2 August 2018), *BBC Radio 5 Live* (3 June 2018; 11 February 2016; 9 April 2013), All Things Considered on *WWNO: New Orleans Public Radio* (22 December 2017), Morning Edition on *WWNO: New Orleans Public Radio* (22 December 2017), A Moment of Science on over 80 radio stations worldwide (7 September 2017), Calgary Today on *News Talk 770 CHQR* (9 August 2017; 4 May 2017), Yale Climate Connections on 350 radio stations across the USA (24 July 2017), Let's Talk on *Talk Radio Europe* (21 April 2017), La FM on *Radio Cadena Nacional Colombia* (10 April 2017), 5 Live Science on *BBC Radio 5 Live* (9 April 2017), The Naked Scientists on *BBC Radio Cambridgeshire* (9 April 2017), In Depth on *CBS Los Angeles KNX 1070* (6 April 2017), La W on *W Radio Colombia* (6 April 2017), This Way Up on *Radio New Zealand National* (24 September 2016), Morning Focus on *Clare FM* (14 September 2016), Good Morning Ulster on *BBC Radio Ulster* (13 September 2016), The Breakfast Show on *BBC Radio Foyle* (13 September 2016), Newsday on *BBC World Service* (12 September 2016; 14 September 2015), Science Friday on US National Public Radio (24 June 2016), The Shaun Doherty Show on *Highland Radio* (29 March 2016), *Bloomberg Radio* (14 February 2016), Science In Action on *BBC World Service* (11 February 2016), *Radio France Internationale* (11 February 2016), Evening Extra on *BBC Radio Ulster* (10 February 2016), 5 Live Breakfast on *BBC Radio 5 Live* (10 February 2016; 30 November 2015), The Breakfast Show on *BBC Radio Berkshire* (10 February 2016; 9 April 2013; 6 October 2008), The Central Morning Show on *CBC Radio 1* (29 January 2016), The Breakfast Show on *BBC Radio Oxford* (30 November 2015), The Breakfast Show on *BBC West Midlands Radio* (30 November 2015), The Anne Diamond Show on *BBC Radio Berkshire* (14 September 2015), news bulletins on *Heart Radio* (23 November 2014), The Stephen Nolan Show on *BBC Radio 5 Live* (31 January 2014; 27 September 2013), You And Yours on *BBC Radio 4* (12 August 2013), All Things Considered on *US National Public Radio* (11 April 2013), Material World on *BBC Radio 4* (11 April 2013), The Jeremy Vine Show on *BBC Radio 2* (9 April 2013), The PM Programme on *BBC Radio 4* (19 October 2011), The In Tune Show on *BBC Radio 3* (22 September 2011)
- 2007– Expert commentary quoted in *The i newspaper* (24 September 2019), *Financial Times* (7 August 2019), *The Daily Telegraph* (23 July 2019), *BBC News website* (2 August 2018), *Carbon Brief* (15 January 2018), *Forbes* (13 July 2017), *Wired* (13 July 2017), *The Independent* (2 January 2016; 1 January 2016), *The Times* (18 February 2014; 19 June 2009; 14 December 2007), *PhysicsWorld.com* (7 December 2011), *New Scientist* (12 August 2010), *Chemistry World* (March 2010), *The Guardian* (19 June 2009; 13 November 2002), *London Evening Standard* (18 June 2009), *Nature* (2 August 2007)
- 2007– Regular science contributor to letters pages, including *Mathematics Today* (October 2017; August 2017), *Physics World* (November 2016; April 2007), *The Sunday Telegraph* (21 February 2016; 27 December 2009; 13 December 2009), *The BMJ* (23 January 2016), *The Times* (14 November 2015), *The Sunday Times* (5 June 2011), *The Daily Telegraph* (28 July 2008), *The Week* (5 January 2008), *The Independent* (29 December 2007)

Engagement with the Public

- 2016– Active Twitter user, tweeting daily about atmospheric science to 7,799 followers
- 2020 Consultant to Guinness World Records, advising on extreme atmospheric events for the 2020 edition of the famous book
- 2020 Co-author of online article for *The Conversation*, which has been read nearly 50,000 times
- 2019 Speaker at New Scientist Live, ExCeL London
- 2019 Speaker at Lincoln Leads seminar on “Should We Control the Weather?”, Lincoln College, University of Oxford
- 2019 Featured case study in UK Research and Innovation brochure on “The impact of UK–US research collaboration”
- 2019 Featured case study in NERC’s Delivery Plan 2019
- 2019 Advisor for the “Lasting Impressions: From Deep Earth to Deep Space” lobby exhibit, AGU HQ, Washington DC, USA
- 2018 Curator of @RealScientists Twitter account with 70k followers, 9–15 December
- 2018 Designed and delivered “Turbulence ahead” pop-up science station at Natural History Museum “Lates” event, London
- 2018 Contributor to the “Going Places” exhibit on human transportation, Science Museum of Virginia, USA
- 2017 Delivered the public evening lecture at the Mathematics of Planet Earth Exhibition, Imperial College London
- 2017 Speaker at British Science Association Oxford Branch SciBar event, St Aldates Tavern, Oxford
- 2017 Speaker at Pint of Science Festival event on CO₂, The Hand and Flower Pub, London
- 2017 My aviation and climate change research featured in World Economic Forum video (370,000 Facebook views)
- 2017 Speaker at Café Scientifique on “Turbulent times ahead for air travel?”, Royal Society, London
- 2017 Speaker to Marlow and District University of the Third Age, Marlow
- 2016 One of four invited speakers at the University of Reading’s inaugural Alumni Homecoming event

- 2015 Presenter of Royal Society short film to mark 350th anniversary of *Philosophical Transactions* (4,299 YouTube views)
- 2015 Climate science lecturer, Marlborough Science Fair
- 2013 Speaker to 24 government officers from Sikkim, India at the University of West London
- 2012 Speaker to Epsom and Ewell University of the Third Age, Surrey
- 2011 Delivered the Mina Lewis Annual Memorial Lecture, Farnborough and District University of the Third Age
- 2010 Expert adviser for £4.5m “atmosphere: exploring climate science” gallery, Science Museum, London
- 2010 Featured case study in IMA/EPSRC leaflet on “Mathematics Matters: Predicting Climate Change”
- 2010 Speaker to Goring Gap University of the Third Age, Berkshire
- 2009 Speaker at Café Scientifique event on Climate Change: The Facts, Queen’s Head Pub, Reading
- 2008 Climate science advisor to author Hamish MacDonald for his novel *Finitude*
- 2007 After-dinner speaker to Pangbourne Rotary Club
- 2007 Climate science speaker at Celebration of Physics event, Dundee
- 2006 Continuing Education day-course on Climate Change, The Environment And You, University of Sussex

Engagement with Schools

- 2020 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2020 Delivered a Sixth-Form Enrichment Lecture, St Albans School, Hertfordshire
- 2019 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2018 Keynote speaker at InterClimate Network’s Model Climate Conference, Reading Borough Council Chambers
- 2018 Delivered a Sixth-Form Enrichment Lecture, St Albans School, Hertfordshire
- 2018 Speaker at Climate Change Conference, Gumley House School sixth form, Middlesex
- 2018 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2017 Speaker at the Trust for Sustainable Living (TSL) International Schools Debates, Green Park, Reading
- 2016 Speaker at JFS Comprehensive School, Harrow
- 2016 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2015 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
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- 2013 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2012 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2011 Speaker at Westminster Kingsway College, London
- 2011 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2010 Speaker at North London Collegiate School sixth form, Edgware
- 2010 Lecturer on the John Hall Venice Course for gap-year students, The National Gallery, London
- 2007 Speaker at Roundwood Park School sixth form, Hertfordshire

Engagement with Policymakers

- 2019 Studies on aviation and climate cited by EASA/EEA/EUROCONTROL European Aviation Environmental Report
- 2017 Invited speaker, International Civil Aviation Organization (ICAO) Seminar on Green Airports, Montréal, Canada
- 2017 Featured in Energy and Climate Intelligence Unit (ECIU) daily news alert, aimed at influential policy-relevant audience
- 2017 Invited author of guest post on climate and aviation for Carbon Brief website
- 2016 Invited author of article for International Civil Aviation Organization (ICAO) Environmental Report
- 2015 Invited expert panellist, ICAO Aviation Environmental Impacts Seminar, Alexandria, Virginia, USA (declined)
- 2014 Study on increased aviation turbulence cited by IPCC AR5 WGII
- 2007 Participant in The Royal Society’s MP–Scientist Pairing Scheme
- 2007 Delegate at SET for Britain House of Commons reception for Britain’s top early-stage researchers
- 2007 Speaker at Climate Change Exchange, a conference for 64 future leaders (aged 16–25) from 13 countries
- 2006 Climate speaker at the Green Economics Institute conference, Mansfield College, University of Oxford
- 2004 Author of Global Warming, Local Warning, a report commissioned and published by the European Parliament

Engagement with Business

- 2020 Presentation to senior staff at Heathrow Airport on aviation impacts of climate change
- 2020 My consultancy work for Heathrow Airport cited in their *Target Net Zero* document
- 2019 Studies on turbulence cited in *Aviation Risk 2020* report by Allianz, one of the world’s leading insurers and asset managers
- 2019 Invited speaker, Avocet Forum on Climate Change Risks for Aircraft Owners, Financiers and Investors, RGS, London
- 2019 Invited presentation to senior staff, Satavia, Cambridge
- 2018 Invited speaker, Sustainable Aviation’s Climate Change Working Group, British Airways Head Office, Heathrow Airport
- 2018 Invited presentation to senior operational managers, NATS Air Traffic Control Centre, Prestwick

- 2017 Invited speaker, European Business Aviation Association (EBAA) committee meeting, Royal Aeronautical Society, London
- 2017 Invited seminar, IBM / The Weather Company, Birmingham
- 2017 Aviation lecture, Insurance Institute of London, Old Library, Lloyd's of London
- 2016 Feature article in Global Aerospace's *Jetstream* annual publication (global readership 6,000 clients)
- 2016 Invited speaker, NAV CANADA North Atlantic Operational Forum, Toronto, Canada
- 2016 Guest speaker, Marex Spectron Institute one-day course on *Applied Meteorology for European Energy Markets*, London
- 2016 Guest speaker, Marex Spectron Institute one-day course on *Applied Meteorology for Key Agricultural Markets*, London
- 2016 Speaker, CIWEM Annual Conference *Does Modelling Deliver?*, Crowne Plaza Hotel, Reading
- 2016 Speaker, Global Aerospace *What's on the Horizon?* seminar, Royal Aeronautical Society, London
- 2013 Speaker, *Environmental Risks to the Aviation Industry* business interaction event, Science Museum, London
- 2011 Speaker, Bloomberg, London, with subsequent interview in *Climate & Carbon* (global readership 300,000)
- 2011 My research used as a case study in the Springer book *European Success Stories in Industrial Mathematics*
- 2007 Speaker, MotivAction Going Green, Inspiring People seminar, Royal Commonwealth Club, London
- 2007 Speaker, Green Light Conference, Edward Billington & Son, Chester
- 2007 Speaker, Spicers Synergy Green Business Conference, Hilton Metropole Hotel, Birmingham

Training Courses Attended

- 2011–14 Royal Society course on Innovation and the Business of Science, Imperial College London Business School
- 2013 American Meteorological Society Short Course on Aviation Weather, Austin, Texas
- 2012 Royal Society media skills course (delivered by Judith Hann, presenter of BBC One's *Tomorrow's World*)
- 2012 Royal Society communication skills course (delivered by Judith Hann, presenter of BBC One's *Tomorrow's World*)
- 2009 Leadership and Management Development Course for Science Research Staff, Roffey Park Institute
- 2007 Short Course on The Mathematics of Large-Scale Atmospheric Flows, University of Reading
- 2007 Doing Outreach workshop, Institute of Physics, London
- 2002 Research Councils' Graduate Schools Programme, West Sussex
- 2000 Geophysical and Environmental Fluid Dynamics Summer School, University of Cambridge

Peer-Reviewed Journal Articles (57 in total; Web of Science™ h-index is 20)

- 2020
 - Kim, J.-H., Kim, D., Lee, D.-B., Chun, H.-Y., Sharman, R. D., **Williams, P. D.** and Kim, Y.-J. (2020) Impact of climate variabilities on trans-oceanic flight times and emissions during strong NAO and ENSO phases. *Environmental Research Letters*, **15**(10), 105017.
 - Thompson, R. L., Watt, C. E. J. and **Williams, P. D.** (2020) Accounting for variability in ULF wave radial diffusion models. *Journal of Geophysical Research: Space Physics*, **125**(8), e2019JA027254.
 - Gratton, G., Padhra, A., Rapsomanikis, S. and **Williams, P. D.** (2020) The impacts of climate change on Greek airports. *Climatic Change*, **160**(2), pp 219–231.
 - Storer, L. N., Gill, P. G. and **Williams, P. D.** (2020) Multi-diagnostic multi-model ensemble forecasts of aviation turbulence. *Meteorological Applications*, **27**(1), e1885.
- 2019
 - Dexheimer, D., Airey, M., Roesler, E., Longbottom, C., Nicoll, K., Kneifel, S., Mei, F., Harrison, R. G., Marlton, G. and **Williams, P. D.** (2019) Evaluation of ARM tethered-balloon system instrumentation for supercooled liquid water and distributed temperature sensing in mixed-phase Arctic clouds. *Atmospheric Measurement Techniques*, **12**(12), pp 6845–6864.
 - Lee, S. H., **Williams, P. D.** and Frame, T. H. A. (2019) Increased shear in the North Atlantic upper-level jet stream over the past four decades. *Nature*, **572**(7771), pp 639–642.
 - Zanna, L., Brankart, J. M., Huber, M., Leroux, S., Penduff, T. and **Williams, P. D.** (2019) Uncertainty and scale interactions in ocean ensembles: From seasonal forecasts to multidecadal climate predictions. *Quarterly Journal of the Royal Meteorological Society*, **145**(S1), pp 160–175.
 - Storer, L. N., Gill, P. G. and **Williams, P. D.** (2019) Multi-model ensemble predictions of aviation turbulence. *Meteorological Applications*, **26**(3), pp 416–428.
 - Gultepe, I., Sharman, R., **Williams, P. D.**, Zhou, B., Ellrod, G., Minnis, P., Trier, S., Griffin, S., Yum, S. S., Gharabaghi, B., Feltz, W., Temimi, M., Pu, Z., Storer, L. N., Kneringer, P., Weston, M. J., Chuang, H.-Y., Thobois, L., Dimri, A. P., Dietz, S. J., França, G. B., Almeida, M. V. and Neto, F. L. A. (2019) A review of high impact weather for aviation meteorology. *Pure and Applied Geophysics*, **176**(5), pp 1,869–1,921.
 - Storer, L. N., **Williams, P. D.** and Gill, P. G. (2019) Aviation turbulence: dynamics, forecasting, and response to climate change. *Pure and Applied Geophysics*, **176**(5), pp 2,081–2,095.

- 2017
- Harrison, R. G., Marlton, G. J., Nicoll, K. A., Airey, M. W. and **Williams, P. D.** (2017) A self-calibrating wide range electrometer for in-cloud measurements. *Review of Scientific Instruments*, **88**(12), 126109.
 - **Williams, P. D.**, Alexander, M. J., Barnes, E. A., Butler, A. H., Davies, H. C., Garfinkel, C. I., Kushnir, Y., Lane, T. P., Lundquist, J. K., Martius, O., Maue, R. N., Peltier, W. R., Sato, K., Scaife, A. A. and Zhang, C. (2017) A census of atmospheric variability from seconds to decades. *Geophysical Research Letters*, **44**(21), pp 11,201–11,211.
 - Storer, L. N., **Williams, P. D.** and Joshi, M. M. (2017) Global response of clear-air turbulence to climate change. *Geophysical Research Letters*, **44**(19), pp 9,976–9,984.
 - Airey, M. W., Harrison, R. G., Nicoll, K. A., **Williams, P. D.** and Marlton, G. J. (2017) A miniature oscillating microbalance for sampling ice and volcanic ash from a small airborne platform. *Review of Scientific Instruments*, **88**(8), 086108.
 - **Williams, P. D.** (2017) Increased light, moderate, and severe clear-air turbulence in response to climate change. *Advances in Atmospheric Sciences*, **34**(5), pp 576–586.
 - Berner, J., Achatz, U., Batté, L., Bengtsson, L., Cámara, A., Christensen, H. M., Colangeli, M., Coleman, D. R. B., Crommelin, D., Dolaptchiev, S. I., Franzke, C. L. E., Friederichs, P., Imkeller, P., Järvinen, H., Juricke, S., Kitsios, V., Lott, F., Lucarini, V., Mahajan, S., Palmer, T. N., Penland, C., Sakradzija, M., von Storch, J.-S., Weisheimer, A., Weniger, M., **Williams, P. D.** and Yano, J.-I. (2017) Stochastic parameterization: toward a new view of weather and climate models. *Bulletin of the American Meteorological Society*, **98**(3), pp 565–588.
- 2016
- **Williams, P. D.**, Howe, N. J., Gregory, J. M., Smith, R. S. and Joshi, M. M. (2016) Improved climate simulations through a stochastic parameterization of ocean eddies. *Journal of Climate*, **29**(24), pp 8763–8781.
 - Marston, J. B. and **Williams, P. D.** (2016) Editorial: Focus on stochastic flows and climate statistics. *New Journal of Physics*, **18**(9), 090201.
 - Marlton, G. J., **Williams, P. D.** and Nicoll, K. A. (2016) On the detection and attribution of gravity waves generated by the 20 March 2015 solar eclipse. *Philosophical Transactions of the Royal Society A*, **374**(2077), 20150222.
 - Harrison, R. G., Marlton, G. J., **Williams, P. D.** and Nicoll, K. A. (2016) Coordinated weather balloon solar radiation measurements during a solar eclipse. *Philosophical Transactions of the Royal Society A*, **374**(2077), 20150221.
 - Kim, J.-H., Chan, W. N., Sridhar, B., Sharman, R. D., **Williams, P. D.** and Strahan, M. (2016) Impact of the North Atlantic Oscillation on transatlantic flight routes and clear-air turbulence. *Journal of Applied Meteorology and Climatology*, **55**(3), pp 763–771.
 - **Williams, P. D.** (2016) Transatlantic flight times and climate change. *Environmental Research Letters*, **11**(2), 024008.
- 2015
- Brown, S., Aplin, K. L., Jenkins, K., Mander, S., Walsh, C. and **Williams, P. D.** (2015) Is there a rhythm of the rain? An analysis of weather in popular music. *Weather*, **70**(7), pp 198–204.
 - Amezcua, J. and **Williams, P. D.** (2015) The composite-tendency Robert–Asselin–Williams (RAW) filter in semi-implicit integrations. *Quarterly Journal of the Royal Meteorological Society*, **141**(688), pp 764–773.
 - **Williams, P. D.** and Kelsall, C. W. (2015) The dynamics of baroclinic zonal jets. *Journal of the Atmospheric Sciences*, **72**(3), pp 1137–1151.
 - Marlton, G. J., Harrison, R. G., Nicoll, K. A. and **Williams, P. D.** (2015) A balloon-borne accelerometer technique for measuring atmospheric turbulence. *Review of Scientific Instruments*, **86**(1), 016109.
 - Franzke, C. L. E., O’Kane, T. J., Berner, J., **Williams, P. D.** and Lucarini, V. (2015) Advanced Review: Stochastic climate theory and modeling. *Wiley Interdisciplinary Reviews: Climate Change*, **6**(1), pp 63–78.
- 2013
- **Williams, P. D.** and Joshi, M. M. (2013) Intensification of winter transatlantic aviation turbulence in response to climate change. *Nature Climate Change*, **3**(7), pp 644–648.
 - **Williams, P. D.** (2013) Achieving seventh-order amplitude accuracy in leapfrog integrations. *Monthly Weather Review*, **141**(9), pp 3037–3051.
 - **Williams, P. D.**, Cullen, M. J. P., Davey, M. K. and Huthnance, J. M. (2013) Mathematics applied to the climate system: outstanding challenges and recent progress. *Philosophical Transactions of the Royal Society A*, **371**(1991), 20120518.
- 2012
- Aplin, K. L. and **Williams, P. D.** (2012) Whether weather affects music. *Eos*, **93**(36), pp 347–348.
 - **Williams, P. D.** (2012) Climatic impacts of stochastic fluctuations in air–sea fluxes. *Geophysical Research Letters*, **39**, L10705.

- **Williams, P. D.** (2012) Comment on “A modified leapfrog scheme for shallow water equations” by Wen-Yih Sun and Oliver M. T. Sun. *Computers & Fluids*, **62**, p 91.
- McCann, D. W., Knox, J. A. and **Williams, P. D.** (2012) An improvement in clear-air turbulence forecasting based on spontaneous imbalance theory: the ULTURB algorithm. *Meteorological Applications*, **19**(1), pp 71–78.
- 2011 • Aplin, K. L. and **Williams, P. D.** (2011) Meteorological phenomena in Western classical orchestral music. *Weather*, **66**(11), pp 300–306.
- **Williams, P. D.** (2011) The RAW filter: an improvement to the Robert–Asselin filter in semi-implicit integrations. *Monthly Weather Review*, **139**(6), pp 1996–2007.
- Amezcua, J., Kalnay, E. and **Williams, P. D.** (2011) The effects of the RAW filter on the climatology and forecast skill of the SPEEDY model. *Monthly Weather Review*, **139**(2), pp 608–619.
- Jacoby, T. N. L., Read, P. L., **Williams, P. D.** and Young, R. M. B. (2011) Generation of inertia–gravity waves in the rotating thermal annulus by a localised boundary layer instability. *Geophysical and Astrophysical Fluid Dynamics*, **105**(2–3), pp 161–181.
- 2010 • **Williams, P. D.**, Read, P. L. and Haine, T. W. N. (2010) Testing the limits of quasi-geostrophic theory: application to observed laboratory flows outside the quasi-geostrophic regime. *Journal of Fluid Mechanics*, **649**, pp 187–203.
- **Williams, P. D.**, Guilyardi, E., Madec, G., Gualdi, S. and Scoccimarro, E. (2010) The role of mean ocean salinity in climate. *Dynamics of Atmospheres and Oceans*, **49**(2–3), pp 108–123.
- 2009 • **Williams, P. D.** (2009) A proposed modification to the Robert–Asselin time filter. *Monthly Weather Review*, **137**(8), pp 2538–2546.
- Knox, J. A., McCann, D. W. and **Williams, P. D.** (2009) Reply to comments on “Application of the Lighthill-Ford theory of spontaneous imbalance to clear-air turbulence forecasting”. *Journal of the Atmospheric Sciences*, **66**(8), pp 2511–2516.
- **Williams, P. D.** (2009) Rapid climate change: an overview for economists. *International Journal of Green Economics*, **3**(1), pp 63–76.
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- 2008 • **Williams, P. D.**, Haine, T. W. N. and Read, P. L. (2008) Inertia–gravity waves emitted from balanced flow: observations, properties, and consequences. *Journal of the Atmospheric Sciences*, **65**(11), pp 3543–3556.
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