

# Institute of Physics – London & South East Branch – Retired Members Section

At Home Meeting

METEOROLOGY

Thursday January 23<sup>rd</sup> 2020

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This event has been organised by Bill Metcalf for REMS

This is one of REMS' biannual one-day *At Home* meetings organized for the LSE Branch of the IOP and open to the public. Admission is free, but registration is required.

This meeting is aimed at those who have some knowledge of meteorology and are interested in an update on modern methods and, especially, the role of computer visualisation tools that (a) assist with the interpretation of multiple inputs and (b) the presentation of complex systems to a lay audience.

## Programme

09:45 Registration and Refreshments

10:30	Introduction	Paul Hardaker, CEO, Institute of Physics
10:40	Peter Lynch (UC, Dublin)	History (introductory overview)
11:15	Maarten H P Ambaum (Reading)	Thermal Physics of the Atmosphere
11:50	Joanna Haigh (IC, London)	Atmospheric Dynamics

12:30 Lunch Complimentary, served in the Atrium area

13:30	Florian Pappenberger (ECMWF)	Meteorological Observations
14:05	David Richardson (ECMWF)	Forecasting
14:40	Peter Gibbs (Freelance Broadcaster)	Delivering the Forecasts
15:15	David Warrilow (President, Royal Meteorological Society)	Concluding Remarks

15:30 End of Day Reception

NB: Florian Pappenberger was unable to attend the meeting, and his talk was delivered by David Richardson

**Where and when to meet:** 10:30 (for registration and refreshments) at:

The Institute of Physics  
37 Caledonian Road  
London  
UK  
N1 9BU

**Getting there:** The nearest station is Kings Cross St Pancras

**Lunch** A lunch will be available at the meeting, and there are many other places to eat in the neighbourhood.

**Size of party:** 150 max

**Cost:** Free to attend. Registration is necessary

**Contacts:** E-mail Tony Colclough at [tonycolclough@outlook.com](mailto:tonycolclough@outlook.com) to register.

Email organiser Bill Metcalf at [bill.metcalf@geo-strategies.com](mailto:bill.metcalf@geo-strategies.com) on matters relating to the programme.

**Late arrivals:** ask advice at the front desk.

# Speakers

## **Professor Paul Hardaker**

CEO, Institute of Physics

Paul Hardaker was previously the Chief Executive of the Royal Meteorological Society. Prior to this, he worked at the Met Office for 14 years as both Programme Director for the Met Office's Development Programmes and as the Met Office's Chief Advisor to Government.

Alongside these posts, Professor Hardaker has been a member of the Physics Advisor Panel at the University of Wales and founding editor of the international journal Atmospheric Science Letters.

Paul currently holds a visiting Professorship in the School of Mathematical and Physical Sciences at the University of Reading, he is a Trustee on the Board of Science Council and Chairman of Sense About Science, as well as a regular contributor to TV, radio and his own blog.

Outside of his work in meteorology, Paul has held a number of non-executive positions including a Non-Executive Directorship of a City company working in risk. He was the Chairman of the UK Research Council's programme on the Flood Risk from Extreme Events (FREE) and for eleven years, until 2009, held a visiting professorship at the University of Salford. Paul is a past Board member of the Science Council, a federal body representing the profession of science in the UK, and for five years was also a Non-Executive Director and latterly Deputy Chairman of the Board of NHS Berkshire West, one of the UK's Primary Healthcare Trusts

## **Professor Peter Lynch**

University College, Dublin

Peter Lynch is an Irish meteorologist, mathematician, blogger and book author. His interests include numerical weather prediction, dynamic meteorology, Hamiltonian mechanics, the history of meteorology, and the popularisation of mathematics.

He was born in Dublin, and educated at University College Dublin, where he obtained his BSc (1968) and MSc (1969) in mathematical science. He enlisted in the Irish meteorological service (now known as Met Éireann) in 1971, and worked there until 2004, rising to the rank of Head of the Research and Training Division and later Deputy Director. In 1982, he was awarded a PhD by Trinity College Dublin for his thesis Planetary-scale Hydrodynamic Instability in the Atmosphere written under the supervision of Ray Bates.

In 2004, he moved to academia, becoming Met Éireann Professor of Meteorology at the School of Mathematical Sciences. He has supervised several doctoral theses there.[2] He is now an Emeritus Professor at the School of Mathematical Sciences.

Shortly after formally retiring from UCD in 2011, he started writing a weekly mathematical blog called "That's Maths", about half of the columns also appearing in The Irish Times newspaper (on the first and third Thursdays of each month).

## **Professor Joanna Haigh, CBE, FRS**

Imperial College, London

Before her retirement in 2019, Joanna Haigh was Professor of Atmospheric Physics at Imperial College London, and co-director of the Grantham Institute for Climate Change and the Environment. She is a former head of the Department of Physics at Imperial College London. She is also a Fellow of the Royal Society, and a former president of the Royal Meteorological Society.

Joanna is known for her work on solar variability, and also works on radiative transfer, stratosphere-troposphere coupling and climate modelling. She was Editor of the Journal of the Atmospheric Sciences and a Lead Author on the Third Assessment Report of the Intergovernmental Panel on Climate Change. She is a Fellow of the Institute of Physics. In 2004 she received the Institute of Physics' Charles Chree Medal and Prize and in 2010 the Royal Meteorological Society Adrian Gill prize for her work on solar variability and its effects on climate.

## **Prof. Maarten H.P. Ambaum**

Dept of Meteorology, University of Reading, UK

Maarten Ambaum is Professor of Atmospheric Physics and Dynamics at the University of Reading and former Head of Department at the Department of Meteorology in Reading. He has a degree in theoretical physics from the University of Utrecht, The Netherlands. His research interests span a wide range of topics in the physics and mathematics of the atmosphere and oceans.

His more recent work dealt with the use of electrical processes in rainfall enhancement, statistical methods in climate science, thermodynamics of the climate system, and variability of the jet stream and the storm track. He is author of a textbook on thermal physics of the atmosphere. Some of his work was also part of an art-science collaboration between the Universities of Brighton, Reading, Exeter and Sussex.

**Dr. Florian Pappenberger** European Centre for Medium-Range Weather Forecasts (ECMWF)  
Florian Pappenberger is Director of Forecasts at ECMWF. Florian has a scientific background in the forecasting of weather driven natural hazards including floods, droughts, windstorms, forest fires and impacts on human health. He has over 10 years of expertise in operational probabilistic forecasting, extreme value statistics and numerical model system development at ECMWF and was responsible for the development and implementation of the operational centre of the Copernicus Emergency Service - Early Warning Systems (floods). Florian is the author of over 150 publications, has won several scientific awards and is visiting Professor at the University of Bristol. He is an elected fellow of the Royal Geographical Society and the Royal Meteorological Society and a member of several other professional bodies including HEPEX, British Hydrological Society, EGU, AGU, EMS, AMS. He is on the editorial board of several international scientific journals and regularly advises on WMO and other international committees.

**Mr. David Richardson** European Centre for Medium-Range Weather Forecasts (ECMWF)  
David Richardson is Head of the Evaluation Section at ECMWF. He has over 30 years' experience in weather forecasting research and operations, including use and monitoring of the global observing system, development of numerical weather prediction models, ensemble forecasting, products and tools for forecast users, and evaluation of all aspects of forecast performance. He has published numerous scientific papers as well as book chapters on these topics.  
David has served on several WMO committees and is currently chair of the WMO Expert Team on Operational Weather Forecasting Process and Support, which oversees the co-ordination of operational NWP activities among WMO member states.

**Mr. Peter Gibbs** Freelance broadcaster  
Peter Gibbs is a former BBC Weather Presenter and enthusiastic amateur gardener with more than 30 years' experience as a professional Met Office forecaster. He chairs BBC Radio 4's 'Gardeners' Question Time' and is a regular reporter on the Radio 4 environment series 'Costing the Earth'.  
Peter's first job as a meteorologist was running the weather observation programme at the British Antarctic Survey's remote Halley research station in Antarctica in the early 1980s, spending two consecutive winters on the ice.  
Peter is a Fellow of the Royal Meteorological Society, and a Visiting Fellow at the University of Reading.

**Mr. David Warrilow, OBE** President, Royal Meteorological Society  
David Warrilow was a senior government science advisor and international negotiator on climate change and environmental issues, such as ozone depletion and air pollution. He led the UK delegations to the Intergovernmental Panel on Climate Change (IPCC) for over 20 years and was a lead negotiator for the EU on the scientific issues covered in the United Nations Framework Convention on Climate Change (UNFCCC). He managed a significant research programme at the Department of Energy and Climate Change providing underpinning scientific evidence and analysis of climate change, energy and ozone depletion in support of the UK's domestic and international policies.  
Prior to this he undertook research at the Met Office on the development of observing systems, hydrometeorology and flood design, and climate modelling of land surface processes.  
David took up the office of President of the Royal Meteorological Society (RMetS) on 1 October 2018.