



RMetsS Virtual Student & Early Career Scientists Conference 2020

Keynote Speaker Abstract and Biographies

Monday 28 June 2020 | 13.00 – 14.30

Forecasting

Chaired by: Prof Liz Bentley, CEO, Royal Meteorological Society

A Leap into the Unknown? Making and Scrutinising Climate Projections for the 21st Century

Dr Amanda Maycock, Director of Institute for Climate and Atmospheric Science and IPCC AR6 WGI Lead Author, University of Leeds

Abstract: The first transient general circulation model simulations attempting to reproduce the evolution of Earth's climate were performed in the 1980s on very simple computers. Since then, as computing power has increased quickly, the international climate science community have embarked on a race to develop more sophisticated climate models that capture a more complete and comprehensive set of processes, as well as performing longer and multitudinous simulations. The latest archive of simulations from the Coupled Model Intercomparison Project phase 6 may contain up to 20PB of data. What have we learned? This talk will provide some examples of recent results including insights gained from large initial condition ensemble experiments and the controversy around the higher equilibrium climate sensitivity of some CMIP6 models. It will also consider examples of things that have not changed over many generations of GCMs despite significant investment in model development.



Biography: Amanda Maycock is an Associate Professor in Climate Dynamics and Director of the Institute for Climate and Atmospheric Science at the University of Leeds, where she has been based since 2015. She previously held a NERC Independent Research Fellowship at Leeds and an AXA Postdoctoral Research Fellowship and Junior Research Fellowship at the University of Cambridge. Her research focuses on large-scale climate variability and change, particularly on the use of global climate models to study interactions between the atmosphere and ocean and large-scale atmospheric circulation. She was Lead Author of the WMO/UNEP 2018 Scientific Assessment of Ozone Assessment and is Lead Author for Chapter 4 (Global and regional future projections) of the IPCC Working Group I Sixth Assessment Report. Amanda was the recipient of a 2018 Philip Leverhulme Prize in Earth Sciences and the EGU 2019 Arne Richter Award for Outstanding Early Career Scientists. Amanda co-leads the World Climate Research Programme (WCRP) SPARC activity on Atmospheric Temperature Changes and their Drivers and is a member of the US CLIVAR working group on the Changing Width of the Tropical Belt.



Long Range Forecasts: Bridging the Gap between Weather Forecasts and Climate Projections

Prof Adam Scaife, Principal Fellow and Head of Monthly to Decadal Prediction, Met Office & Professor, College of Engineering, Mathematics and Physical Sciences, University of Exeter

Abstract: Regular weather forecasts save lives every year and help us to plan for everything from the nation's energy needs to putting the washing out. The same science is now also used to predict future global warming as we continue to emit greenhouse gases into the atmosphere. But what about the timescale in between? Can we make skilful predictions months to years ahead? Scientists have wanted to make long range weather predictions for centuries but ideas around complexity and the chaotic sensitivity to initial conditions (the so called butterfly effect) would at first sight seem to prohibit this. Here we look at current capability in long range prediction on seasonal to decadal timescales and show that even in the variable mid-latitudes, some of the most notable extremes can be predicted well beyond the timescale of usual weather forecasts.



Biography: Adam leads research and production of long-range forecasts at the Met Office and is a Professor at the University of Exeter. His group issues climate forecasts on a regular basis and carries out world leading research to improve seasonal to decadal predictions for adaptation to climate variability and change.

Adam's personal research is focused on understanding, modelling and prediction of climate variability. He has published more than 200 peer reviewed articles on physical mechanisms, improvements to climate models and new sources of predictability of regional climate. His research group recently demonstrated skilful seasonal prediction of European winters and new applications of long-range forecasts and have uncovered a so-called 'signal to noise paradox' in climate predictions, whereby climate models are better at predicting aspects of the real world than they are at predicting themselves.

In recent years, Adam was awarded the Royal Meteorological Society's Buchan prize and the Institute of Physics Edward Appleton Medal.

Nowcasting for the UK: Challenges and Opportunities

Katie Norman, Nowcasting R&D Manager, Met Office

Abstract: The World Meteorological Organisation defines nowcasting as "forecasting with local detail, by any method, over a period from the present to six hours ahead, including a detailed description of the present weather". Under such a broad definition, how is nowcasting done at a national Meteorological Service? This talk seeks to set out the Met Office's priorities for nowcasting in the UK and the challenges we face in forecasting the weather at short lead times. It will explore how nowcasts are generated and used, and finally, examine some of the areas of research which are key to improving the skill and utility of predictions at very short lead times.



Biography: Katie leads the Nowcasting Research and Development team at the Met Office and has spent her career to date working to improve the use of observations for forecasting and warning over the UK. Currently she is working on the Convective Nowcasting Project at the Met Office alongside other Scientists, Operational Meteorologists and Technologists, to improve the Met Office's 0-2 hour forecasts and warnings. Previously, Katie has worked on improving quantitative precipitation estimates from weather radar networks in the UK and Europe and in quantifying the uncertainties in these estimates. Her work has also spanned the hardware and engineering aspects of weather radar, as part of a large engineering team delivering the renewal of the UK weather radar network and the introduction of dual polarisation technology to the network. Katie has also spent part of her career developing our Science Partnerships with research and academic institutions in the UK via the Met Office Academic Partnership and the Joint Weather and Climate Research Programme.



Tuesday 29 June 2020 | 15.00 – 16.30
Science Communication on COVID-19 times
Chaired by: Prof Liz Bentley, CEO, Royal Meteorological Society

Communicating Climate Change - A Journalist's Perspective

Leo Hickman, Editor, Carbon Brief

Abstract: Leo Hickman walks us through his own experiences and reflections of covering climate change as a journalist at both the Guardian and Carbon Brief over the past two decades.

Biography: Leo is the editor and director of Carbon Brief. Leo previously worked for 16 years as a journalist, editor and author at the Guardian newspaper. Before joining Carbon Brief, he was WWF-UK's chief advisor on climate change. In 2013, he was awarded an honorary doctorate by the University of Exeter in recognition of his journalism. In 2020, he was named "Editor of the Year" by the Association of British Science Writers. His books include A Life Stripped Bare, The Final Call and Will Jellyfish Rule the World?



Engaging the Public with Climate Change - Lessons from COVID-19

Prof Lorraine Whitmarsh, Director - Centre for Climate Change & Social Transformations (CAST), Department of Psychology, University of Bath

Abstract: In this talk, I will draw lessons from responding to COVID-19 for mobilising public action on climate change. Both risks require significant behavioural change and have certain features in common, but there are also important differences - and reasons to think responding to climate change will be more challenging. Nevertheless, I will show that



through targeted communication and a range of policy measures, significant behaviour change to mitigate climate change can be achieved as it has been for COVID.

Biography: Professor Lorraine Whitmarsh is an environmental psychologist, specialising in



perceptions and behaviour in relation to climate change, energy and transport, based in the Department of Psychology, University of Bath. She is Director of the ESRC-funded UK Centre for Climate Change and Social Transformations (CAST). She regularly advises governmental and other organisations on low-carbon behaviour change and climate change communication, was one of the expert leads for Climate Assembly UK, and is Lead Author for IPCC's Working Group II Sixth Assessment Report. Her research projects have included studies of meat consumption, energy efficiency behaviours, waste reduction and carrier bag reuse, perceptions of smart technologies and electric vehicles, low-carbon lifestyles, and responses to climate change.

From Science to Society: Creating Stories about Clean Air

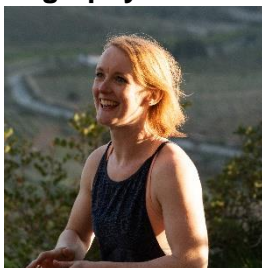
Dr Harriett Richardson, Communications Manager, National Centre for Atmospheric Science

Abstract: During the UK's first Covid-19 lockdown, the air became cleaner. Shifts to low pollution behaviours, like not using cars, gave us a glimpse of what the future could look like. We were reminded that clean air is not just a scientific problem, but a collective issue both in cause and solution.

Presenting the facts isn't enough though - the research community needs to use compelling and relatable ways to help society understand the complexities of clean air. One way is with stories. They provide useful shortcuts for people to evaluate information and allow audiences to explore their attitudes.

Harriett will discuss the benefits of bringing academics, writers, educators, illustrators and communities together to tell a story about air pollution. She will explain why public engagement is important (not just as an 'add-on' to research), and dive into the importance of developing diverse and inclusive communications, both in their approach and delivery.

Biography: Harriett leads the Communications team at the National Centre for Atmospheric



Science - a world leading research centre, funded by the Natural Environment Research Council.

She started out as an environmental scientist, gaining a PhD from the University of Glasgow and UK Centre for Ecology & Hydrology, but soon realised that interpreting and sharing science appealed to her more. Over the last seven years, Harriett has worked to make science more accessible, and bridge the gap between atmospheric research and people affected by environmental change and other social

issues.

Her professional interests are supporting scientists to talk with different audiences about climate change, air pollution and hazardous weather, collaborative public engagement projects, and nurturing a more inclusive and sustainable research community.

Her personal ones are trail running, rock climbing, art, her cat and teaching yoga. She is from Worcester but now lives in Leeds, via time spent living in Lancaster and Wageningen.