Speaker Abstracts and Biographies

1st RMetS Climate Change Forum

Session 1: Climate Evidence Needs of the UK Society and Government

Climate Evidence Needs: a BEIS perspective
Dr Julia Knights, Deputy Director, Head of Energy and Climate Science at BEIS

Abstract: Julia will focus on the research priorities from the BEIS Clean Growth Strategy and highlight key research needs from the Intergovernmental Panel on Climate Change (IPCC)'s 1.5 Special Report including greenhouse gas reductions technologies at scale. Priorities from the Met Office Hadley Centre Climate Programme funded by BEIS & Defra will be discussed. And research needs around Earth Observations and land use, land use change and forestry will be emphasised. Julia will finish with some key research priorities around behavioural science related toca attitudes to climate change across all sectors.

Biography:

Dr Julia Knights is Deputy Director Energy and Climate Science at BEIS where she oversees a team covering international climate science negotiations, a programme of climate science research & the UK's greenhouse gas inventory. Julia is also Chair of the Board of the Met Office Hadley Centre Climate Programme & Strategic Adviser to the Secretariat of Mission Innovation - an international initiative aimed at rapid acceleration of clean energy innovation. Previously Julia spent 12 years in the FCO, heading up the science teams in East China, Russia & Latin America within the UK's diplomatic missions. In Brazil, Julia oversaw a £150 Million Newton Fund for joint research in climate, biodiversity & sustainable agriculture. Previously Julia worked in Defra for 5 years. She holds a BSc Hons in soil science, an MSc in crop protection & a PhD in climate biogeochemistry, and is a Fellow of the Royal Society of Biology.

Risk and Resilience: Evidence needs from Defra perspective
Deborah Owens, Head of Climate, Department for Environment, Food and Rural Affairs (DEFRA)

Abstract: Defra are the government lead on climate adaptation as set out in the Climate Change Act. Deborah will introduce Defra's policy drivers, including the 5 yearly statutory adaptation cycle starting with Climate Change Risk Assessment (CCRA) and followed by the National Adaptation Programme (NAP). She will also highlight the importance of multidisciplinary science to understand and address these issues including highlighting plans for the upcoming third CCRA, current evidence gaps and future evidence priorities for climate adaptation.

Biography:

Deborah leads Defra's climate team, responsible for climate science and domestic climate policy within the department, both on adaptation and mitigation. Her team co-fund the Met Office Hadley Centre Climate Programme with BEIS, and led on the new UK Climate Projections (UKCP18). Last year the team produced the National Adaptation Programme setting out the actions Government will take to address climate risks, as well as ensuring that action is taken across Defra in reducing emissions. Deborah has worked on climate-related policy throughout her career in the civil service, including climate and waste sector policy, the EU ETS and has represented the UK at Montreal Protocol negotiations on ozone depleting substances and fluorinated gases. Deborah also previously worked on consumer engagement policy at Ofgem and with local authorities in delivering carbon reductions. Deborah studied Biochemistry at the University of Leeds.

Julie Foley, Director FCRM Strategy & National Adaptation, Environment Agency

Biography:

Julie Foley became the Director of Flood Risk Strategy and National Adaptation in the Environment Agency in January 2019.
Julie has been Area Director for the Environment Agency's Kent and South London Area since October 2016. Her accountabilities include leading over 500 staff who work on issues relating to flood risk management, spatial planning advice, pollution control, water abstraction licencing, industry regulation, environmental crime, fisheries and biodiversity, waterways as well as incident management response. The Area's operational responsibilities include the Thames Barrier Tidal Defences and the Medway navigations.
Before joining Kent, South London & East Sussex Area, Julie was Area Director for the Environment Agency's Cambridgeshire & Bedfordshire Area which encompasses the River Great Ouse Catchment.
Julie has been in the Environment Agency for about twelve years and was previously Deputy Director for Sustainable Places with national oversight for the Environment Agency's work on spatial planning and sustainable development. Her background prior to that was in the Department for Environment, Food and Rural Affairs (Defra) where she worked on a range of strategic policy issues including climate change, flooding and water management.

Towards understanding, quantifying and acting on climate risk information

Professor Jason A. Lowe, Head of Climate Services at Met Office and Chair in interdisciplinary Climate Research at the Priestley Centre (University of Leeds).

Abstract: It is increasingly evident that the climate is changing, and that a component of the change is being driven by human activities. It is also clear that extreme weather events already lead to impacts on people, infrastructure and nature – with events often causing significant damage and sometimes loss of life. In this context there is a growing need from the climate science communities to improve the information they provide, and make it more useful and more usable. This is an interdisciplinary task requiring contributions from physical sciences, social sciences, engineering and other disciplines. Improvements will require both better quantification of weather and climate hazards and the conversion of this hazard information into risk. The risk information also needs to be used effectively within the processes taking place to improve resilience on local and national scales.
In this presentation I will discuss some of the recent advances in climate science that can contribute to better quantification of risk, and highlight some of the gaps that need to be addressed. I will also provide an introduction to the new SPF funded UK climate resilience programme, which is being delivered as a collaboration between UKRI and the Met Office.

Biography:

Professor Jason Lowe is a Principal Fellow and Head of Climate Services in the Met Office Hadley Centre, and Chair of Interdisciplinary Climate Research in the Priestley Centre at the University of Leeds. He has spent considerable time developing and communicating policy relevant science, including contributing to the design of several of the Met Office Hadley Centre Climate Programmes. Professor Lowe has led the development of innovative and collaborative ways of producing and delivering both mitigation and adaptation science and advice. Most recently this involved leading the production of the latest UK Climate Scenarios, UKCP18, and the scientific aspects of the Met Office contribution to the new SPF programme on climate risk and resilience.

Round Table Discussions Part 1: Interdisciplinary Science Challenges

Risks of Weather and Climate Extremes

Rowan Sutton, Director of Climate Science and Rachel Brisley, Associate Director, JBA Consulting

Abstract: Weather and climate extremes are anticipated to increase in the future and could bring severe impacts to the economy, environment and society. This round table will discuss current scientific understanding, the degree to which this is being transferred to decision and policy makers and how to refine research priorities and outputs to help plan for resilience to weather and climate extremes.

Biographies:

Rowan Sutton is Director of Climate Science for the UK National Centre for Atmospheric Science, based at the University of Reading. He was a Lead Author of the Working Group I Contribution to IPCC Fifth Assessment Report and is a member of the Scientific Steering Committee for the UKRI UK Climate Resilience Programme. He is also PI of the North Atlantic Climate System Integrated Study (ACSIS: acsis.ac.uk) - a major multi-disciplinary strategic research programme focussed on understanding changes in the climate of the North Atlantic / European region. In recent publications he has argued that policy and business needs for robust climate risk assessments have major consequences for priorities in climate research (see https://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-18-0280.1)

Rachel leads JBA's work on climate resilience and has a national and international track record working with decision and policy makers to understand current and future climate risks and identify potential ways to adapt to these. With her public sector background in economic, social and environmental regeneration combined with consultancy experience in economic development and environmental sustainability, she has a good understanding of the political and socio-economic context within which climate risks need to be managed. Rachel was involved in the development of the second UK Climate Change Risk Assessment (CCRA) and is co-authoring the People and Environment Chapter of UK CCRA3 due to be published in 2021.

Risks of Sea Level Rise and Extreme Sea Levels for Coastal Flooding and Erosion

Professor Kevin Horsburgh, National Oceanography Centre and Mark Russell, Coastal Modelling and Forecasting Manager at Environment Agency

Abstract: Coastal flooding poses a significant risk to life and to infrastructure, with wide-ranging social, economic and environmental impacts. In coastal cities worldwide, flood exposure is increasing due to the changing climate, subsidence and population growth in low-lying areas. About 40% of the global population lives within 100 km of the coast. Any increases in future extreme sea levels will result in increases to flooding and erosion. Assessing the impacts of sea level rise and sea level extremes from global to regional scales is an interdisciplinary research challenge, which we are going address at this round table. We will also address how to better translate our scientific knowledge into the necessary adaptation and resilience initiatives that government, society and business need to adopt.

Biographies:

Professor Kevin Horsburgh is the Chief Scientist for International Development at the NERC National Oceanography Centre (NOC). He leads large, multi-agency projects that use marine science to support sustainable economic development in every corner of the world. This includes significant activity in the areas of sea level measurement and hazard warning, habitat mapping, and modelling the impacts of climate change. Kevin has over 25 years of experience in understanding and predicting the coastal ocean. He has an international reputation in the field of coastal flood risk, storm surges and the statistics of extreme sea levels. He is a visiting professor at the University of Liverpool. Kevin translates his strong research background into climate change, shelf sea physics, tides, storm surges and tsunamis into a real-world focus, leading to evidence-based policy guidance for sea level mitigation and coastal management. He advises the UK Office for Nuclear Regulation on coastal hazard, and has authored the last three editions of the Marine Climate Change Information Scorecard (MCCIP) on sea level change. Kevin is also the Chair of the IOC/WMO JCOMM Expert Team on Disaster Risk Reduction which has several projects that deliver coastal flood warning systems and capability to the world's most vulnerable regions.

Mark has worked in the field of understanding and managing flood risk for nearly 20 years in the Environment Agency's Flood and Coastal Risk Management function. Mark's current role focusses on the providing the evidence on flood risk of the English coastline and estuaries for flood protection, land use planning and flood incident response. Mark's previous roles have involved managing the residual flood risk in the south West of England through flood forecasting and flood warning. Previously to joining the Environment Agency, Mark delivered projects on soil erosion and water quality for 10 years at the University of Exeter.

Water Cycle Risks

Hayley Fowler, Newcastle Universtiy and Geoff Darch, Anglian Water Services Limited

Abstract: Climate change leads to changes in the water cycle, which varies across geographic regions. On one hand, intense rainfall events increase the risk of flooding. On the other hand, a rise in temperatures and evaporation increase the risk of droughts. This round table addresses this key challenge from an interdisciplinary perspective. The first short presentation will present the most pressing of the GEWEX/WCRP scientific grand challenges and some of the UK and Global funded-initiatives that are attempting to address some of these. The second presentation will be focused on the use of the science from a practitioner perspective in the UK Water Industry based around the UKWIR research priorities, the UKCP19 climate projections and storyline approaches.

Biographies:

Hayley Fowler is Professor of Climate Change Impacts in the School of Engineering at Newcastle University. A hydroclimatologist with over 15 years of experience, she has analysed the impacts of climate change and variability on hydrological systems, publishing more than 100 ISI-cited articles since 2000. She is a Fellow of the American Geophysical Union and a Royal Society Wolfson Research Fellow.

She is a Contributing Author to two chapters of the forthcoming IPCC 6th Assessment Report, and an author of the next UK Climate Change Risk Assessment (CCRA3). She is also chair of the Global Energy and Water EXchanges (GEWEX) Hydroclimatology Panel (GHP) sub-daily precipitation cross-cut and Chief Editor of the international journal “Frontiers in Interdisciplinary Climate Studies”.

Her internationally-renowned research examines recent trends in precipitation extremes and future projections and their impacts on flood and drought risk with over £12M of funding from NERC, Defra, EPSRC, ERC, EU, Royal Society, Leverhulme Trust, British Council, and UK Water Industry Research. She has also been instrumental in developing new downscaling techniques to bridge the gap between modellers and users of climate information (e.g. UKCP09 Weather Generator) and developing new guidance for UK urban drainage design to improve UK Climate Resilience.

She collaborates widely, particularly with the National Center for Atmospheric Research (USA) and the University of New South Wales (Australia) where she has held Visiting Professorial Positions.

Geoff Darch is Water Resources Strategy Manager at Anglian Water, responsible for the company’s long-term Water Resources Management Plan, Drought Plan and associated investment planning. He also provides wider technical advice to senior managers on weather-related risk and climate change.

Prior to joining Anglian Water in mid-2017, Geoff was Head of Climate Risks & Adaptation at Atkins, where he led applied research and consultancy studies for clients including international finance institutions, government departments, environmental agencies and utility companies.

Geoff is a guest lecturer at the Climatic Research Unit, University of East Anglia, and sits on several climate change working groups including at CIWEM, BSI and ISO. He is co-founder of the Analysis under Uncertainty for Decision Makers network (http://au4dmnetworks.co.uk/). Geoff has a PhD in hydro-climatology, is a Chartered Scientist, and a Fellow of the Royal Meteorological Society.

Round Table Discussions Part 2:
Science Communication and Support to the Community

Public Outreach – Making Science Relevant

Roz Pidcock, Climate Outreach and Leo Hickman, Carbon Brief

Abstract: What challenges do (climate) scientists face when reaching out to the public? What are the most effective ways to communicate climate change? What formats are needed to address all members of the public? What does the public actually enquire to know about climate change? We want to discuss these questions at our round table and find out whether and how the Society can offer support to the Community.

Biographies:

Roz leads the Science Communication Programme at Climate Outreach, focusing on supporting scientists through evidence-based training to engage with a broader audience about climate change. Roz has a PhD in physical oceanography from the University of Southampton and was previously Head of Communications for Working Group I of the Intergovernmental Panel on Climate Change (IPCC) and Deputy Editor of Carbon Brief, a specialist climate change news and analysis organisation in the UK.

Leo is the editor of Carbon Brief, an award-winning website which specialises in climate change. He previously worked for 16 years as a journalist, editor and author at the Guardian newspaper. Before joining Carbon Brief in early 2015, 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. His books include A Life Stripped Bare, The Final Call and Will Jellyfish Rule the World?

Science in Business and Finance

Emily Shuckburgh, University of Cambridge and Honorary Fellow at British Antarctic Survey and Erik Mackie, Postdoctoral Researcher at British Antarctic Survey

Abstract: Climate change creates both risks and opportunities for businesses and investors. This round table explores where climate science could input to quantitative and qualitative tools and metrics to monitor a firm's exposure to climate risks and to inform their strategic planning in response. A representative from the Bank of England's insurance catastrophe risk specialism will also join this round table, focusing on their recently published "Framework for assessing financial impacts of physical climate change" as a starting point for the discussion.

Biographies:

Dr Emily Shuckburgh is Director of the Carbon Neutral Futures Initiative at the University of Cambridge and a Fellow at British Antarctic Survey. She is based at the Department of Computer Science and Technology at the University of Cambridge, where is also a fellow of Darwin College, a fellow of the Cambridge Institute for Sustainability Leadership and an associate fellow of the Centre for Science and Policy. Until April 2019 she led the national research programme on the Southern Ocean and its role in climate (ORCHESTRA), and was deputy head of the Polar Oceans Team and head of the Data Science Group at British Antarctic Survey. In the past she has worked at Ecole Normale Superieure in Paris and at MIT. She is a fellow of the Royal Meteorological Society and co-chair of their Climate Science Communications Group. She has also acted as an advisor to the UK Government on behalf of the Natural Environment Research Council. In 2016 she was awarded an OBE for services to science and the public communication of science. She is co-author with HRH The Prince of Wales and Tony Juniper of the Ladybird Book on Climate Change.

Erik Mackie is a Postdoctoral Researcher at the British Antarctic Survey, with research interests in climate science, physical oceanography, satellite remote sensing and sea-level rise. In his current position as a National Productivity Investment Fund Fellow, he is engaging with businesses and industry to investigate how the use of oceanographic satellite observations and other climate science data can be beneficial for their business needs. He has a BSc in Applied Mathematics from the University of Edinburgh and completed his PhD at the University of Bristol and BAS, using satellite observations to study the circulation of the Southern Ocean and its role in global climate change. He is a keen climate science communicator, and has worked as a Fellow at the Parliamentary Office of Science and Technology in London where he authored a POSTnote briefing paper on Rising Sea Levels for the UK Parliament.

Supporting Young Scientists

Caroline Coch, Royal Meteorological Society and Gabi Hegerl, University of Edinburgh

Abstract: The next generation of scientists is facing a lot of challenges - funding, job insecurity, career development inside and outside academia, work life balance, dual careers or family life. Is it important to move around to get internationally recognized? Are there solutions for people who are not mobile to ensure international visibility? What culture do we envision in academia? We want to bring these challenges to this round table, work on solutions and explore how the Royal Meteorological Society can help in addressing them. Everybody is welcome to this round table no matter the career level.

Biographies:

Caroline joined the Royal Meteorological Society as Climate Science Communications Specialist in 2018. She has recently submitted her PhD thesis at the Alfred-Wegener-Institute for Polar and Marine Research (Germany). Her research looks at the hydrology and biogeochemistry of small river catchments in the Canadian Arctic. She has been involved in numerous early career researcher networks, such as the Permafrost Young Researchers Network (PYRN), the Association of Polar Early Career Scientists (APECS) and the Helmholtz Juniors. Caroline completed a BSc degree in Geography at Friedrich Schiller University Jena (Germany) and a MSc degree in Glaciology and Polar Environments at Stockholm University (Sweden). During her studies she spent extended time as an exchange student in Iceland and Svalbard.

Gabi Hegerl is a professor for climate system science at the University of Edinburgh. Her research focuses on identifying the drivers and mechanisms of observed climate change. Gabi published some of the first studies determining that recent warming is statistically different from climate variability, and how to distinguish between possible causes for climate change. Gabi's recent work has shown that human influences have changed global precipitation patterns and has made contributions to determining the causes of changing characteristics of extreme weather events. Gabi has contributed extensively to reports by the Intergovernmental Panel on Climate Change, and is co-leading the World Climate Research program's grand challenge on extreme events. Gabi has had key roles in scientific assessments of climate change (IPCC), and is a fellow of the Royal Society, the American Meteorological Society, the American Geophysical Union and of the Royal Society of Edinburgh.