



Abstracts and Biographies| Understanding the Weather of 2019

Saturday 14 March 2020, 10.30am-5.00pm

Peter Gibbs

Biography: Meteorologist and broadcaster Peter Gibbs spent more than 30 years as a front line forecaster with the UK's Met Office and as one of the BBC national weather presenting team.

Peter co-chairs the iconic Radio 4 show 'Gardeners' Question Time' and is a regular reporter on the environment series 'Costing the Earth'.

His first job as a meteorologist was at the British Antarctic Survey's remote Halley research station in Antarctica in the early 1980s, spending two consecutive winters on the ice. He returned to Antarctica in 2016 to report on the global importance of the science programme at Halley for the BBC's flagship science show 'Horizon'

Title: "Phew, What a Scorcher!" 2019 in review

Abstract: It seemed the weather was never out of the news headlines during 2019, with extreme events in many parts of the world leading to some 100 billion dollars of damage and widespread human suffering. Average global temperature was the second highest on record, just behind the major El Nino year of 2016 and a number of national all-time temperature records were broken, sometimes by a considerable margin. The year saw greenhouse gas emissions continue apace, with atmospheric concentrations reaching new record highs. Attribution studies now allow scientists to estimate the contribution of human activity to extreme weather soon after the event and this, along with high profile activism, meant that climate change achieved a higher media profile than ever before.

Dr Ian Simpson, Met Office

Biography: Dr Ian Simpson is a Climate Data Scientist at the Met Office, part of the National Climate Information Centre. He completed his PhD in precipitation variability across the UK at the University of East Anglia Climatic Research Unit in 2011. His research interests include climatology and extreme weather events with a focus on the UK. Ian is a long-standing Associate Fellow of the Royal Meteorological Society and has contributed personal meteorological records to the Climatological Observers Link since July 2011.

Title: Review of the UK weather during 2019 - An unexceptional year overall, but with some remarkable short-lived heatwaves

Abstract: In this presentation we look back at the UK's weather during 2019, reviewing the year's statistics and most notable weather events. The year ended up warmer, wetter and sunnier than average, but not exceptionally so, continuing the recent run of warm years. However, some short-lived spells of unusual warmth brought record high temperatures for the UK in February, July and December.

Mark McCarthy, Met Office

Biography: Mark McCarthy manages the National Climate Information Centre at the Met Office. His work is part of a team of scientists providing monitoring of UK climate variability and change from historical observational datasets. Mark joined the Met Office in 1999 and has also been based in climate research. During this time his research interests have ranged from water vapour in the upper troposphere to modelling of land surface processes, from the Indian monsoon to urban micro-climates.

Title: Heatwaves in 2019

Abstract: In this presentation I will provide an overview of the context of major heatwaves of 2019 in both the UK and globally. New national temperature records were set during 2019 in France (46.0 C), Germany (42.6 C), Netherlands (40.7 C), Belgium (41.8 C), Luxembourg (40.8 C), and UK (38.7 C) during two very significant European heatwave events. Notable heatwaves also impacted Japan, Australia and India during the year. I will also provide a brief summary of a new operational heatwave definition being used for public communication during UK heatwave events and discussion about how plausible it might be to reach 40 C somewhere in the UK.

Matthew Perry, Met Office

Biography: Matthew Perry is a Senior Applied Scientist at the Met Office. He has worked at the Met Office for 17 years, starting as a climatologist developing key datasets for the UK, before changing his focus to helping customers understand the impacts of weather and climate on their operations or infrastructure and adapt to future climate change. This has included work on fire danger classes for the UK. He has also spent two years working at CSIRO in Australia on solar energy applications.

Title: The wildfires of 2019

Abstract: Wildfires around the world hit the headlines throughout 2019. Wildfires can have major impacts on people's health and safety, wildlife and ecosystems, buildings and infrastructure, as well as carbon emissions. It is becoming increasingly clear that climate change is leading to an increased risk of wildfire in some regions due to higher temperatures and an increase in drought conditions. In this talk, an overview of major wildfire events which occurred during 2019 will be given. The UK and Australian wildfire seasons will then be considered in more detail. The weather conditions which provided the context for these events will be assessed, using fire danger index models as well as key



weather variables. The climate drivers which led to these conditions will also be considered, and we'll look at climate model projections to ask whether we can expect more severe wildfire conditions in the future.

Stephen Turner, *UK Centre for Ecology & Hydrology*

Biography: Stephen Turner is a Hydrologist based at the UK Centre for Ecology & Hydrology (UKCEH) in Wallingford with research interests in hydrometric data management and analysis and interpretation. Stephen works on the UK National River Flow Archive and the National Hydrological Monitoring Programme. The programme aims to provide an authoritative voice on hydrological conditions throughout the UK. Stephen is also responsible for the Meteorological Station based at UKCEH which records daily weather observations dating back to 1962 and is part of the Met Office UK Climatological Observation Network.

Title: 2019: A Hydrological Summary

Abstract: The National Hydrological Monitoring Programme (NHMP) is undertaken jointly by the UKCEH and the British Geological Survey and has a particular obligation to document contemporary hydrological conditions and to identify and interpret long-term hydrological change and variability. In terms of the weather, 2019 was a year of extremes with record-breaking heat and rainfall. The talk will show how this translated into UK hydrology in relation to river flows, groundwater and water resources, for the UK as a whole and more locally. The first half of the year was dominated with speculation of drought fears, however following some months of wet weather, exceptionally so in March and June this was somewhat eased and in places as high river flows led to flooding. Drought fears lingered in areas of south-east England, however following further successive months of above average rainfall these fears were squashed, with more widespread flooding in November and December. Looking forwards to the first couple of months of 2020 the talk will touch on the widespread flooding we've seen so far and the prospects for the rest of 2020.

Lorienne Whittle, *Woodland trust*

Biography: Having always been inspired by nature and being outdoors, Lorienne completed a BSc Ecology, followed by an MSc in Primate Conservation. Wanting to see more of the world, travel and research in south-east Asia motivated Lorienne to undertake a 16month road trip from Mexico to the tip of Argentina. Since returning to England Lorienne worked for the World Land Trust (Conservation Projects Officer for South America), had a brief spell as a secondary school Geography teacher and rediscovered her love of British wildlife! As the Nature's Calendar Citizen Science Officer Lorienne particularly enjoys using

her passion to enthuse others and make the important science outcomes of the Nature's Calendar accessible to all.

Title: Weather, climate change and phenology; looking back at 2019

Abstract: The presentation will begin with an introduction to the project, including defining key terms such as 'phenology' and 'citizen science'. A background of Nature's Calendar's history will be briefly given, including how the Woodland Trust came to manage this high engagement citizen science project. Key historical phenologists will be highlighted, including Robert Marsham, whose records, dating back to 1736, form the basis of the Nature's Calendar database. An overview of the Nature's Calendar species and how the public can record phenology events online will give a good understanding to discussing the 2019 data.

Looking back at 2019 will reveal how weather, particularly the mild spring and sunny February, influenced the timing of key events for many species. From the timing of the first flowering bluebell, budburst of an oak tree, frogspawn appearing and insects emerging, 2019 was a startlingly 'early year' across the Nature's Calendar species. So mild was the winter that some events, such as the flowering of snowdrops and hazel, were recorded in late 2018. But what is the impact on wildlife? The research carried out using Nature's Calendar data provides some answers, but further investigation is needed. Key science outputs will be highlighted and a look towards future scenarios in respect to changing weather patterns and the impact of climate change on our wildlife.

Lorenzo Tommassini, Met Office

Biography: Lorenzo is a Senior Scientist on convection, large-scale dynamics, and global model development at the Met Office. His work explores the interaction between moist diabatic processes and the atmospheric circulation on a wide range of scales. Lorenzo has been a member of the Global Model Evaluation and Development group since September 2015. Prior to joining the Met Office he worked as a scientist at the Max Planck Institute for Meteorology in Hamburg, Germany. Lorenzo obtained Ph.D.s in Mathematics as well as in Natural Sciences, both from the Swiss Federal Institute of Technology in Zurich (ETHZ), Switzerland.

Title: Tropical cyclones

Abstract: The year 2019 broke various tropical cyclone records: hurricane Lorenzo was the easternmost category 5 Atlantic hurricane on record, cyclone Kyarr the strongest Arabian Sea cyclone on record, tropical cyclone Dorian the most intense tropical cyclone to strike the Bahamas, and cyclone Kenneth became the most intense tropical cyclone to make landfall in Mozambique on record. The deadliest tropical cyclone of the year was tropical cyclone Idai in the South-West Indian Ocean, which killed at least 1,303 people in Mozambique, Malawi, Zimbabwe, and Madagascar. The highest costing tropical cyclone of the year was typhoon Hagibis in the Western Pacific Ocean, which caused more than \$15 billion in damage after striking Japan. In the presentation some of those extraordinary events are reviewed and related meteorological conditions discussed. Also, some aspects of simulating and predicting these impressive tropical phenomena are touched upon.