Abstracts | Understanding the Weather of 2018

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Dr. Freja Vamborg
ECMWF Copernicus Climate Change Service

The Copernicus Climate Change Service (C3S) routinely monitors and analyses more than 20 essential climate variables to build a global picture of our climate, from the past to the future, as well as develops customisable climate indicators for relevant economic sectors, such as energy, water management, agriculture, insurance and health.

In this talk we look back at 2018 from a climate perspective, starting with global climate drivers such as greenhouse gas concentrations and then considering several climate indicators such as temperature, precipitation, glaciers and sea ice both from a global and regional perspective. We also briefly revisit 2018 from a European point of view, including the “Beast from the East” and the dry summer in central and northern Europe.

Joanne Camp
Global Tropical Cyclones

Tropical cyclone activity was slightly above-average in the North Atlantic in 2018, with 15 named storms, of which 8 became hurricanes. Two hurricanes made landfall in the U.S.: Florence and Michael. Florence became the wettest hurricane on record in North and South Carolina and Michael was the strongest to make landfall in the U.S. since Hurricane Andrew in 1992, causing more than $14 billion in damage. The most intense tropical cyclone worldwide in 2018 was Yutu in the western North Pacific, which impacted the northern Mariana Islands with winds of 180 mph. The western North Pacific also saw Typhoon Mangkhut become the most intense typhoon to make landfall in the Philippines since Haiyan in 2013 and the strongest to impact Hong Kong since 1983. The eastern North Pacific was also exceptionally active, becoming the most intense on record with the highest number of category 4 and 5 hurricanes. Here we explore reasons behind the active northern hemisphere seasons in 2018 and look at contrasting activity in the southern hemisphere season 2017/18, which experienced below-average activity.

Dr. Arathy Menon
The South Asian Summer Monsoon – A Personal Perspective

The South Asian monsoon is one of the most dramatic aspects of Earth’s annual cycle, its associated rains affecting the lives of more than a billion people by supplying the water needed for agriculture and industry. India receives more than 80% of its annual rainfall during the monsoon season between June and September. Any variability in timing, duration and intensity of the monsoon have a significant impact on rain-fed agriculture that contributes a major portion of India’s GDP, as well as affecting its coal and steel industries and thereby affecting world economy.
India as a whole received less than normal rainfall (-9.4%) during the 2018 monsoon season compared to the long period climatology. However, in August 2018, the state of Kerala in southwest India witnessed the worst floods in the past 100 years, killing around 480 people and evacuating about 1.4 million into relief camps. Low pressure vortices called monsoon depressions that formed over the Bay of Bengal in August 2018 in the presence of strong cross-equatorial monsoon flow resulted in an accumulation of moisture and clouds across the Western Ghats mountains near Kerala and resulted in extreme rainfall there. Kerala received 23% excess rainfall in 2018. The accumulation of heavy rains in the catchments upstream to major reservoirs filled the reservoirs and 35 out of the 39 major dams had

to be opened during the event which increased the severity of the flood. An effective reservoir management incorporating the extreme rainfall forecasts and flood forecasts must be in place to handle such situations in future.

Dr. Ian Simpson
Review of the UK Weather during 2018 - A Warm, Sunny and Eventful Year

In this presentation we look back at the UK's weather during 2018, reviewing the year's statistics and most notable weather events. 2018 was one of the top five warmest years for England (though not for the UK) and the second sunniest for the UK. The warmth and sunshine peaked between May and early August, resulting in the joint warmest summer for the UK. Notable cold extremes also featured occasionally - there were two exceptional cold snaps in late February and March (widely referred to as the "Beasts from the East") and some early frosts in September and October.

Dr. Roger Brugge FRMetS
2018 in Reading: Weather Highlights and Statistics

The talk with describe the weather of 2018 in Reading as observed using the daily 0900 GMT manual weather observations made at The University of Reading. It will describe the meteorological events of the year, placing them into an historical context using observations made over the past 110 years at the University. Mention will also be made of monthly and seasonal weather statistics and the East Berkshire temperature time series (1863-2018) will also be presented.

Carsten Skjoth
The pollen season in the UK in relation to weather parameters and how a new generation of atmospheric models may improve current pollen forecasting

In the UK, the pollen season vary from year to year in severity, in duration and in between geographical areas. Here we will describe how observations are used to describe the progress of the pollen season, present how the pollen season has progressed in the UK the last few years and discuss which weather variables are the driving variables. We will also provide the status for a new generation of atmospheric forecast models for the UK using birch pollen as an example. The model is suitable for describing the development of the pollen season in more detail, thereby complementing the existing observations with a new approach for analysing and forecasting pollen concentrations within the country.

Lucy Barker
2018: A Hydrological Summary

In this hydrological review of 2018 we will take a look at UK river flows and groundwater levels over the previous year. Following the dry autumn and winter in 2017/18, there were concerns about groundwater and water resources in the south-east of England. Although a wet spring ameliorated conditions here, the situation intensified in the north and west of the UK and central England. Reservoirs and responsive catchments responded to the hot, dry summer, with flows in many catchments across the country approaching, or eclipsing, minimum recorded flows. Many drew the comparison between 2018 and 1976, but was 2018 comparable to this memorable drought year? We will end thinking about how the events of 2018 will influence hydrology and the water resources of 2019.

Prof Sir Brian Hoskins CBE Hon FRMetS
Discussing Extremes such as Summer 2018

In this talk, Brian briefly considers the UK and Northern Hemisphere weather and climate of Summer 2018, highlighting some of the unusual aspects and comment on the possible role played by climate change.