Professor Amanda Maycock, Institute for Climate and Atmospheric Science, University of Leeds

Title: Variability and projected trends in North Atlantic atmospheric circulation

Abstract: I will give an overview of several strands of work related to variability and trends in the winter North Atlantic atmospheric circulation. I will present a new feature-based method for characterising daily variability of the North Atlantic eddy-driven jet. I will argue that our feature-based approach offers greater insight to jet variability than the prevailing Jet Latitude Index of Woollings (2010). Interestingly, the widely discussed 'regime-like' behaviour of the jet is not evident in the feature-based methodology. The second strand of work I will present concerns future projections of the North Atlantic Oscillation (NAO). Using multi-model large initial condition ensembles, we decompose the uncertainty in projected NAO changes into parts due to internal variability and model structural difference. We further quantify the importance of uncertainty in NAO projections for European precipitation trends. The NAO plays a small role in northern European mean winter precipitation projections by the end of century. Conversely, half of the model uncertainty in southern European winter precipitation projections is potentially reducible through improved understanding of the NAO. Lastly, I will discuss multi-decadal variability in the NAO and the importance of atmosphere-ocean coupling and stratosphere-troposphere coupling for uncertainty in simulated multi-decadal NAO variability.

Bio

Amanda Maycock is Professor in Climate Dynamics and Director of the Institute for Climate and Atmospheric Science at the University of Leeds. Amanda completed her PhD in atmospheric and climate science at the University of Reading. She held an AXA Postdoctoral Research Fellowship and a Junior Research Fellowship at the University of Cambridge before moving to Leeds in 2015 where she held a NERC Independent Research Fellowship. Her research focuses on large-scale climate variability and change, particularly atmosphere-ocean coupling, stratosphere-troposphere interaction, teleconnections and extratropical circulation. She was Lead Author for the IPCC Sixth Assessment Report and Lead Author of the WMO/UNEP 2018 Scientific Assessment of Ozone Assessment. Amanda received a Philip Leverhulme Prize, the EGU 2019 Arne Richter Award and the AMS 2022 Award for Outstanding Early Career Scientists. Amanda is co-chair of the World Climate Research Programme SPARC core project.