

A. Scaife: Challenges and Progress in Sub-Seasonal to Decadal Prediction on Regional Scales

There is now a large international research effort to provide climate predictions which are initialised with the current state of the climate system. Constraining predictions with both initial conditions and boundary conditions could in principle allow better anticipation of when natural and anthropogenic effects will conspire to create extreme or even unprecedented events. Here we will describe predictions out to a decade ahead, including the relative importance of initial conditions and boundary conditions at different forecast lead times. The state of the art in predicting both global and regional scale climate will be discussed, including emerging evidence for some predictability of the likelihood of extreme events - in some cases at lead times out to years ahead. Research avenues for improving these near term climate predictions will also be discussed: the effect of improving model resolution, better representing fundamental processes such as atmospheric blocking and improving teleconnections to processes that can provide long range predictability in forecast systems will all be discussed as crucial pieces of the long range prediction problem.



Adam Scaife, Head of UK Met Office Hadley Centre's Seasonal to Decadal Prediction Group

Dr Adam Scaife provides leadership in seasonal forecasting, decadal forecasting and modelling climate variability. His group produces ensembles of seasonal to decadal forecasts and carries out research to improve the forecasts for adaptation to climate variability and change. He also leads the development of the new high-resolution climate model HadGEM3-H.

Dr Scaife's personal research is focused on climate variability. He has published more than 50 peer-reviewed articles on mechanisms of climate variability and their simulation in physically based climate models, including the causes of changes in European climate from cold blocked winters in the 1960s to the mild wet winters of the 1990s, as well as year-to-year effects from El Niño and stratosphere-troposphere interaction. He is currently working on a new feedback that produces a first-order change in extratropical climate change predictions.

Dr Scaife is also Co-chair of the WCRP CLIVAR Working Group on Seasonal to Interannual Prediction, a member of the WCRP SPARC Scientific Steering Group and the IAMAS International Commission on Dynamical Meteorology.