

Statistical decadal predictions for SSTs: a benchmark for dynamical GCM predictions

Chun Kit HO

NCAS-Climate, University of Reading, UK, c.k.ho@reading.ac.uk

Ed Hawkins, Len Shaffrey, Fiona Underwood

Presenter : Ed Hawkins, NCAS-Climate, University of Reading, UK, e.hawkins@reading.ac.uk

Accurate decadal climate predictions could be used to inform adaptation actions to a changing climate. The skill of such predictions from initialised dynamical global climate models (GCMs) may be assessed by comparing with predictions from statistical models which are based solely on historical observations. We present two benchmark statistical models for predicting both the radiatively forced trend and internal variability of annual mean sea surface temperatures (SSTs) on a decadal timescale. These statistical forecasts are also compared with ensemble mean retrospective forecasts by DePreSys, an initialised GCM. DePreSys is found to outperform the statistical models over large parts of North Atlantic for lead times of 2–5 years and 6–9 years, however the empirical models are generally superior to DePreSys in the North Atlantic Current region, the Indian Ocean and in parts of South Atlantic for a range of lead times. These findings encourage further development of benchmark statistical decadal prediction models, and methods to combine different predictions.