



Decadal climate prediction for the period 1901-2010 with a coupled climate model

Wolfgang A. Mueller (1), Holger Pohlmann (1), Frank Sienz (1), and Doug Smith (2)

(1) Max Planck Institute for Meteorology, Hamburg, Germany, (2) Met Office/Hadley Centre, Exeter, UK

An ensemble of yearly initialised decadal predictions is performed with the Max-Planck-Institute Earth System Model to examine the forecast skill for the period from 1901-2010. Compared to the more recent period (1960 to present day), the extended period leads to an enlargement of regions with significant anomaly correlation coefficients (ACC) for predicted surface temperatures. This arises from an increased contribution of the trend, which is also found in uninitialized runs. However, in the North Atlantic decadal variability plays a larger role over the extended period, with detrended time series showing an increase of ACC for the extended compared to the short period. Furthermore, in contrast to the uninitialized simulations, the initialised predictions capture the North Atlantic warming events during the 1920s and 1990s, together with some of the surface climate impacts including warm European summer temperatures and a northward shift of Atlantic tropical rainfall.