SESSION: (B2) Modelling issues in S2D prediction

(B2-07)

The German Climate Forecast System GCFS2.0

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The German seasonal forecast system (GCFS) has been jointly developed by Max Planck Institute for Meteorology (MPI-M), Universität Hamburg (UHH) and Deutscher Wetterdienst (German Meteorological Service, DWD). Forecasts are published starting in October 2016. Since summer 2017 DWD is one of 13 Global Producing Centres of Long-Range Forecasts to the WMO Multi-Model Ensemble. Starting summer 2018 DWD provides its forecast data also to the Copernicus Climate Change Service C3S.

 The first system started from a CMIP5 version of the climate model MPI-ESM (Max Planck Institute Earth System Model) and has been adapted for the demands of climate forecasts, therefore bearing the name GCFS1.0. The second version GCFS2.0 is now based on a higher resolved MPI-ESM both in atmosphere and ocean and gets its historical forcing data from CMIP6. Alongside with an improved version of the climate model the ensemble configuration has been also increased. GCSF2.0 now uses 30 members for the hindcasts and 50 members for the forecasts. Initial conditions for the atmosphere are taken from ERA-Interim or IFS-analyses while the ocean model is initialised by ORAS5, the new ocean reanalysis of ECMWF. We will show how and where the model climate and forecasts have been improved, e.g. in terms of skill scores, ENSO forecasts and special weather regimes, and where the challenges still are.