



Evaluation and first forecasts of the German Climate Forecast System 1 (GCFS1)

Kristina Fröhlich (1), Johanna Baehr (2), Wolfgang Müller (3), Felix Bunzel (3), Holger Pohlmann (3), Mikhail Dobrynin (2), and the further members of the joint working group on seasonal prediction Team

(1) Deutscher Wetterdienst, Offenbach, Germany, (2) Institute of Oceanography, University of Hamburg, Hamburg, Germany, (3) Max Planck Institute for Meteorology, Hamburg, Germany

We present the near-operational seasonal forecast system GCFS1 (German Climate Forecast System version 1), based on the CMIP5 version of the global coupled climate model MPI-ESM-LR. For GCFS1 we also present a detailed assessment on the predictive skill of the model.

GCFS1 has been developed in cooperation between the Max Planck Institute for Meteorology, University of Hamburg and German Meteorological Service (DWD), the forecasts are conducted by DWD. The system is running at ECMWF with a re-forecast ensemble of 15 member and a forecast ensemble of 30 member. The re-forecasts are initialised with full field nudging in the atmosphere (using ERA Interim), in the ocean (using ORAS4) and in the sea-ice component (using NSIDC sea-ice concentration). For the initialization of the forecasts analyses from the ECMWF NWP model and recent ORAS4 analyses are taken. The ensemble perturbations are, for both re-forecasts and forecasts, generated through bred vectors in the ocean which provide initial perturbations for the ensemble in combination with simple physics perturbations in the atmosphere.

Evaluation of the re-forecasted climatologies will be presented for different variables, start dates and regions. The first winter forecast during the strong El Niño phase is also subject of evaluation.