



Towards a limited-area climate ensemble prediction system for decadal forecasts

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The main focus of the German BMBF-funded programme MiKlip is to provide decadal climate prediction. Within this programme the general goal of the project LACEPS (A Limited-Area Climate Ensemble Prediction System) is the development of an ensemble climate prediction system for the decadal forecast on the regional scale for Europe employing the regional climate model COSMO-CLM.

The ensemble is built on three different perturbation strategies, the perturbation of 1.) initial conditions, 2.) model physics, and 3.) boundary data conditions and data. The focus of the evaluation is on the air temperature at 2 m above ground and the total precipitation sum.

The presentation will focus on the evaluation of the COSMO-CLM simulations and the reliability of the ensemble achieved on the basis of hindcasts. For the reliability we show the resulting Talagrand analysis rank histograms with its corresponding the Beta scores as well as the Ensemble Spread Score ESS and the Ensemble Mean Bias EMB. We also address the added value of the regional compared to the global hindcasts.

Results show generally a higher reliability for the 2 m temperature than for precipitation. For the near surface temperature the reliability is higher in the winter than in the summer months, but for precipitation it is vice-versa. The reliability of the COSMO-CLM ensemble 2 m temperature is in most regions higher than that of the driving global model.