Evaluation of the statistical-dynamical seasonal prediction of the North Atlantic Oscillation

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The North Atlantic Oscillation (NAO) has a major influence on European weather. It has been shown to be most influential in winter, but effects on meteorological parameters have also been determined during summer. Seasonal prediction of the NAO in general is currently limited. As one possible way of improving seasonal predictions with a dynamical model, we have used subsampling strategies based on physical predictors. By this statistical post-processing of an existing ensemble prediction we achieved a higher prediction skill than the dynamical model alone.

In this contribution, we re-evaluate this statistical post-processing, in particular with respect to the insights gained into the processes and uncertainties driving the forecast skill. We investigate the seasonal hindcast of the summer NAO of the Max Planck Institute Earth System Model (MPI-ESM) seasonal prediction system with 30 ensemble members initialized every May and November between 1982 - 2015. We use several different predictors determined before the start of the respective prediction. We also show the effects of this post-processing on meteorological variables over the European continent and the British Isles.