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Decadal predictability in the North Atlantic as seen by EC-Earth3.

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We study the decadal predictability in the North Atlantic region using ensembles of historical and decadal prediction experiments with EC-Earth3 and other CMIP models. In particular, the focus is on the NAO and the sub-polar gyre region. In general the impact of initialization is weak for lead-times larger than one to two years and we investigate different ways to isolate and estimate the statistical significance of this impact. For the sub-polar gyre region the prediction skill is found to be mainly due to an abrupt change in the late 90ies and models disagree on whether this skill is due to forcing or initial conditions. Also the predictability of the NAO is weak and varies with lead-time and length of the predicted period. We only see weak evidence of the 'signal-to-noise paradox'. The importance of the ensemble size is also studied.