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Decadal predictability of the North Atlantic eddy-driven jet in winter and summer within CMIP6

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Recently it has been shown that initialised climate predictions capture the decadal variability of the winter NAO with high skill. However, the signal from models is often hidden among their large internal variability, which results in a low signal-to-noise ratio. In this study, we quantify the skill of the North Atlantic eddy-driven jet's location and intensity, both in summer and winter. We focus on multi-model decadal predictions made for CMIP6. Overall, we find that models feature a higher skill (as featured by the Anomaly Correlation Coefficient) in predicting the intensity of the jet than its location. For years 2-9, the high winter NAO skill is largely associated with skilful prediction of the jet speed. However, skill in summer is considerably worse than in winter, with models consistently failing to capture the observed southward shift of the Jet between the 1970s and 2010s. Finally, we also show that the skill for the winter NAO is sensitive to the period over which it is computed, and skill drops considerably when evaluating up to the present day, as models fail to capture the observed northern shift and strengthening of the winter eddy-driven jet over the period 2005-2020, as well as the positive trend in the winter NAO.