



Flow-dependent predictability of the North Atlantic jet

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The North-Atlantic eddy-driven jet is a major component of the large-scale flow in the northern-hemisphere. Here we present evidence from reanalysis and ensemble forecast data for systematic flow-dependent predictability of the jet. It is found that when the jet is weakened it is both less persistent and less predictable. This suggests that when the jet is weakened it enters into a region of state space more sensitive to small perturbations, rather like the sensitive region between the wings of the Lorenz attractor. When the jet is shifted poleward of its mean latitude it is more likely to weaken and transition to an equatorward shifted state via wave-breaking, hence passing through this sensitive region. This may provide an explanation for lower probabilistic forecast skill when the jet is initially in a poleward shifted state.