

Long Range Predictability of the NAO and Atlantic Winter Weather

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Previous long range forecast experiments have concluded that European and North American winter climate are largely unpredictable at seasonal lead times. Here we use a new long range forecast system to demonstrate that the winter North Atlantic Oscillation and key aspects of European and North American winter climate are in fact highly predictable several months ahead. We demonstrate skilful forecasts of European near surface temperature, precipitation, wind speed and storminess that have high societal value for planning and adaptation to climate variability. Analysis of ensemble forecasts suggests that while we have now achieved useful levels of seasonal forecast skill, key sources of predictability are still only partially represented and there is further untapped predictability.