



## **Seasonal predictability of the North Atlantic Oscillation**

Michael Vellinga, Adam Scaife, and the GloSea5 Team  
United Kingdom (michael.vellinga@metoffice.gov.uk)

Until recently, long-range forecast systems showed only modest levels of skill in predicting surface winter climate around the Atlantic Basin and associated fluctuations in the North Atlantic Oscillation at seasonal lead times. Here we use a new forecast system to assess seasonal predictability of winter North Atlantic climate. We demonstrate that key aspects of European and North American winter climate and the surface North Atlantic Oscillation are highly predictable months ahead. We demonstrate high levels of prediction skill in retrospective forecasts of the surface North Atlantic Oscillation, winter storminess, near-surface temperature, and wind speed, all of which have high value for planning and adaptation to extreme winter conditions. Analysis of forecast ensembles suggests that while useful levels of seasonal forecast skill have now been achieved, key sources of predictability are still only partially represented and there is further untapped predictability.

This work is distributed under the Creative Commons Attribution 3.0 Unported License together with an author copyright. This license does not conflict with the regulations of the Crown Copyright.