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Investigating seasonal predictability of winter transport impacts in the UK

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Major recent advances in the predictability of the winter North Atlantic Oscillation (NAO) index at seasonal timescales[1], using the Met Office Global Seasonal Forecasting System (GloSea5), present exciting opportunities for assessing the predictability of a variety of winter weather impacts on the UK.

We have begun to investigate the predictability of winter impacts on the UK transport system, by examining the relationships between the NAO index (both observed and as forecast by GloSea5) and a variety of UK winter transport impacts[2], including road accidents, delays on the railway network, and aviation impacts at London Heathrow Airport.

The results of this preliminary study, jointly supported by the UK Government Department for Transport and the EU FP7 EUPORIAS project, indicate that there is scope for developing prototype forecasts of the relative risk of occurrence of particular impacts in a given winter for the UK. Such forecasts can support decision-making and resilience across the UK transport sector – for example, in decisions about scheduling maintenance, locating snow-clearing equipment, and procuring de-icing materials – and are potentially extensible to other parts of Europe where the NAO has a strong effect on winter climate.

[1] A.A. Scaife, A. Arribas, E. Blockley, A. Brookshaw, R.T. Clark, N. Dunstone, R. Eade, D. Fereday, C.K. Folland, M. Gordon, L. Hermanson, J.R. Knight, D.J. Lea, C. MacLachlan, A. Maidens, M. Martin, A.K. Peterson, D. Smith, M. Vellinga, E. Wallace, J. Waters and A. Williams (2014) Skilful long range prediction of European and North American winters. Accepted for publication in Geophysical Research Letters, DOI: 10.1002/2014GL059637

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