



## **The new Met Office strategy for seasonal forecasts**

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In October 2011 the Met Office began issuing a new-format UK seasonal forecast, called “The 3-month Outlook”. Government interest in a UK-relevant product had been heightened by infrastructure issues arising during the severe cold of previous winters. At the same time there was evidence that the Met Office’s “GLOSEA4” long range forecasting system exhibited some hindcast skill for the UK, that was comparable to its hindcast skill for the larger (and therefore less useful) ‘northern Europe’ region. Also, the NAO- and AO- signals prevailing in the previous two winters had been highlighted by the GLOSEA4 model well in advance.

This presentation will initially give a brief overview of GLOSEA4, describing key features such as evolving sea-ice, a well-resolved stratosphere, and the perturbation strategy. Skill measures will be shown, along with forecasts for the last 3 winters. The new structure 3-month outlook will then be described and presented.

Previously, our seasonal forecasts had been based on a tercile approach. The new format outlook aims to substantially improve upon this by illustrating graphically, and with text, the full range of possible outcomes, and by placing those outcomes in the context of climatology. In one key component the forecast pdfs (probability density functions) are displayed alongside climatological pdfs. To generate the forecast pdf we take the bias-corrected GLOSEA4 output (42 members), and then incorporate, via expert team, all other relevant information. Firstly model forecasts from other centres are examined. Then external ‘forcing factors’, such as solar, and the state of the land-ocean-ice system, are referenced, assessing how well the models represent their influence, and bringing in statistical relationships where appropriate. The expert team thereby decides upon any changes to the GLOSEA4 data, employing an interactive tool to shift, expand or contract the forecast pdfs accordingly. The full modification process will be illustrated during the presentation.

Another key component of the 3-month outlook is the focus it places on potential hazards and impacts. To date specific references have been made to snow and ice disruption, to replenishment expectation for regions suffering water supply shortages, and to windstorm frequency. This aspect will be discussed, showing also some subjective verification.

In future we hope to extend the 3-month outlook framework to other parts of the world, notably Africa, a region where the Met Office, with DfID support, is working collaboratively to improve real-time long range forecasts. Brief reference will also be made to such activities.