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Title: A user perspective on predictability and skill in extended range forecasts

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Abstract:

As an operational user of weather forecasts we face daily challenges in interpreting and making decisions under uncertainty. Whilst an estimate of the uncertainty in forecasts is a very useful feature, having an a-priori estimate of the likely skill of a particular forecast is also of paramount importance for measuring confidence. Adding multiple-models into the decision making process poses further challenges that we discuss here through a set of examples from forecasts over the past year.

Here we demonstrate the value of attempting to quantify and understand state dependent predictability, and show that much can be learned from studying lower order properties of model performance which we demonstrate by considering the simulation of weather regimes in the ECMWF monthly forecasting system. In particular we show that whilst current extended range models simulate the spatial structure of variability reasonably well, there are clear issues in the temporal and spatio-temporal structure of variability that suggest average skill will vary with the initial and forecast state.

Finally, we illustrate through a set of examples that the recent trend in running "lagged" ensembles for longer range forecasting is much more useful to users over the static approach taken by a number of forecasting centres, given the enhanced role that initial conditions can have in controlling extended range forecasts.

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