SESSION: (C3) Time scale interaction (includes teleconnections)

(C3-05)

Seasonal Forecasts of the 20th Century: Multi-Decadal Variability in Predictive Skill of the Winter NAO

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Based on skill estimates from hindcasts made over the last couple of decades, recent studies have suggested that considerable progress has been made in forecasting winter climate anomalies over the Euro-Atlantic area using current-generation forecast models. However, previous-generation models had already shown that forecasts of winter climate anomalies in the 1960s and 1970s were less successful than forecasts of the 1980s and 1990s. Given that the more recent decades have been dominated by the NAO in its positive phase, it is important to know whether the performance of current models would be similarly skilful when tested over periods of a predominantly negative NAO.

To this end, new ensembles of retrospective seasonal forecasts covering the period 1900 to 2009 have been created with uncoupled and coupled versions of the ECMWF model, providing unique tools to explore many aspects of seasonal climate prediction. In this study we focus on the multi-decadal variability in predicting the winter NAO. The existence of relatively low skill levels during the period 1950s -1970s has been confirmed in the new dataset. This skill appears to increase again for earlier and later periods. Whilst these interdecadal differences in skill are, by themselves, only marginally statistically significant, the variations in skill strongly co-vary with statistics of the general circulation itself suggesting that such differences are indeed physically real. The mid-Century period of low forecast skill coincides with a negative NAO phase but the relationship between the NAO phase/amplitude and forecast skill is more complex than linear.