Systematic Bias in the Magnitude of Ensemble Spread?

By

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In a recent paper, Eade et al (2014) claim that seasonal to decadal ensemble forecasts actually underestimate the predictability of the real world, particularly in the North Atlantic region. That is to say, on these timescales, ensemble forecast systems overestimate spread, and are thus under-confident. This contrasts with many conventional ensemble forecast studies, particularly in the tropics, where ensembles are typically found to be under-spread, and are thus over-confident. What is going on? Does this result indicated that some of the sources of model uncertainty are being overestimated in ensemble systems e.g. through stochastic sub-grid representations? Or is there some other type of model systematic error that is amplifying representations of uncertainty excessively? Or perhaps this under-confidence is simply not a statistically robust result and vanishes when a larger sample size is considered. All of these issues will be discussed in this presentation. This issue is important for the design of reliable seasonal and climate forecast systems that may be used for decision making in various application sectors.