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Evaluating Analysis and Forecast Uncertainty

Depending on the prevailing weather conditions, the future weather can be anything from very predictable to very unpredictable. "Ensemble forecasts" (essentially many forecasts started from slightly different initial conditions) aim to represent this varying level of uncertainty (arising from the effects of Chaos). Because ensemble forecasts give us a range of possible outcomes, they cannot in general be "wrong" or "right" in the conventional sense. My talk will try to address three questions: How do we evaluate ensemble (or probabilistic) forecasts? What are the key aspects we need to get right? How well have we improved over the years? I will suggest that a focus on very short forecast ranges provides the best method to diagnose how well we represent flow-dependent uncertainty in analyses and forecasts.

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