

# CGD SEMINAR



**DATE:** Tuesday, 1 November 2016

**TIME:** 11 a.m.

**LOCATION:** NCAR, 1850 Table Mesa Drive  
Mesa Lab, Main Seminar Room

**TITLE:** Which predictability estimates are most realistic?

**SPEAKER:** Kathleen Pegion, George Mason University

## ABSTRACT:

Predictability represents the upper limit of prediction skill if we had an infinite member ensemble and a perfect model. It is an intrinsic limit of the climate system associated with the chaotic nature of the atmosphere. Producing a forecast system that can make predictions very near to this limit is the ultimate goal of forecast system development. Estimates of predictability together with calculations of current prediction skill are often used to define the gaps in our prediction capabilities on subseasonal to seasonal timescales and to inform the scientific issues that must be addressed to build the next forecast system. Quantification of the predictability is also important for providing a scientific basis for relaying to stakeholders what kind of climate information can be provided to inform decision-making and what kind of information is not possible given the intrinsic predictability of the climate system.

One challenge with predictability estimates is that different prediction systems can give different estimates of the upper limit of skill. How do we know which estimate of predictability is most representative of the true predictability of the climate system? Previous studies have used the spread-error relationship and the autocorrelation to evaluate the fidelity of the signal and noise estimates. Using a multi-model ensemble prediction system, we can quantify whether these metrics accurately indicate an individual model's ability to properly estimate the signal, noise, and predictability. We use this information to identify the best estimates of predictability for 2-meter temperature, precipitation, and sea surface temperature from the North American Multi-model Ensemble and compare with current skill to indicate the regions with potential for improving skill.

**Live webcast:** <http://www.fin.ucar.edu/it/mms/ml-live.htm>

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