Regime-dependent predictability for sub-seasonal forecasts

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Recent work has demonstrated that forecasts initiated from states that project onto certain large-scale patterns typically associated with low-frequency variability, can exhibit extended forecast skill. So are for example forecasts initialized in the negative phase of the North Atlantic Oscillation more skillful over the Euro-Atlantic sector than average. Potential predictability on the sub-seasonal scale is often associated with such state-dependent or conditional predictability.

Here we will investigate to which degree these findings carry over to other modes of variability, such as e.g. the Pacific North American pattern (PNA) and ENSO teleconnection patterns using the subseasonal-to-seasonal (S2S) database. We determine if initializations that project highly onto the positive or negative PNA phase are associated with changes in sub-seasonal predictability. Finally, we examine the forecast error growth in these initialized forecasts in an attempt to link extended subseasonal predictability to the classical predictability theory proposed by Lorenz (1969).

Key words: Subseasonal predictability, regimes, forecast error growth spectra

References:

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