What improvements are we seeking in the Seasonal Forecast System (SFS) for seasonal prediction products?

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Abstract

Dynamical forecasts have become integral to operational seasonal predictions in recent decades. These forecasts rely on both initial conditions and the representation of key skill sources within the forecast models. Despite variations in model performance, they commonly face challenges related to long-term trends and El Niño Southern Oscillation (ENSO) variability—two critical factors influencing seasonal prediction skill. Addressing these challenges is essential for improving seasonal forecasts. In this presentation, we examine deficiencies related to the initialization and representation of long-term trends and ENSO within dynamical forecast models, with a specific focus on the Climate Forecast System version 2 (CFSv2). We'll discuss diagnostic approaches and experiments aimed at enhancing the performance of the seasonal forecast system (SFS). Additionally, we'll discuss the representation and diagnoses of the Madden-Julian Oscillation, a phenomenon with significant impacts on subseasonal predictability and ENSO evolution.