**Relative Merit of Model Improvement versus Availability of Retrospective Forecasts:**

**The case of Climate Forecast System MJO prediction**

Qin Zhang and Huug van den Dool

Climate Prediction Center, NCEP/NWS/NOAA, Camp Springs, MD

Abstract

We analyzed retrospective forecasts of the new NCEP Climate Forecast System out to 45 days from 1999-2009 with 4 members (00Z, 06Z, 12Z and 18Z) each day. The new version of CFS (CFSv2) shows a big improvement over the older CFS (CFSv1) in predicting the Madden-Julian Oscillation, the skill reaching 2 to 3 weeks in comparison with the CFSv1 for nearly one week. Diagnostics of experiments related to the MJO forecast show that the systematic error correction, possible because of the enormous hindcast data set, and the ensemble aspects of the prediction system (four times a day) do contribute to improved forecasts. But the main reason is the improvement in model and initial conditions between 1995 and 2010.