Sensitivity of MJO Predictability to SST

Kathy Pegion[1] and Ben P. Kirtman[1,2]

[1]Center for Ocean-Land-Atmosphere Studies
[2]University of Miami/RSMAS

This study investigates the impact of different SST variability on the predictability of the MJO using the National Centers for Environmental Prediction Climate Forecast System (CFS). Previously, we performed a case study of "perfect" model predictability experiments for a single model MJO event using the CFS. These experiments were performed with the fully-coupled model and with the atmospheric component forced with "perfect" SST, forecast SST, persisted SST anomalies, and climatological SST from a control simulation of the coupled model. The results of this case study indicate that degrading the quality of the SST can have a significant negative impact on the predictability of precipitation on intraseasonal timescales. Most importantly, the loss of predictability of precipitation due to degrading the SST is larger than the loss due to using the uncoupled model. Therefore, it seems that correct SST are of paramount importance for the predictability and presumably prediction of precipitation associated with the MJO.

We will show the sensitivity of the predictability of MJO-related precipitation for an expanded suite of predictability experiments. The experiments are expanded to include ten strong model MJO events. Additionally, the experiments are also performed for monthly varying SST and daily SST with the intraseasonal variability removed.

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*Corresponding author address: Dr. Kathy Pegion, Center for Ocean-Land-Atmosphere Studies, 4041 Powder Mill Road, Suite 302, Calverton, MD 20705. E-mail kpegion@cola.iges.org.