

# **The MJO in Uncoupled and Coupled Versions of the Superparameterized CAM/CCSM**

James J. Benedict, David A. Randall, Cristiana Stan, and Charlotte A. DeMott

Colorado State University  
Fort Collins, CO

## **Abstract**

The MJO in three versions of the Superparameterized CAM/CCSM is compared. In the first simulation forced by prescribed SSTs (SPCAM-AMIP), robust intraseasonal variability is noted in the West Pacific region with weaker MJO activity over the Indian Ocean. In the second simulation (SPCAM-SOM), the implementation of an idealized slab-ocean model that is connected to the SPCAM allows SSTs to deviate slightly from their prescribed values in the presence of anomalous surface fluxes. The SPCAM-SOM simulation indicates more realistic MJO eastward propagation, signal coherence, and spatial structure relative to SPCAM-AMIP, particularly for disturbances in the Indian Ocean region. The third simulation involves a superparameterized version of the CCSM (SP-CCSM) and indicates an improvement over the standard CCSM in the longitudinal distribution of intraseasonal rainfall variability and a more realistic MJO signal coherence. All three versions of the SPCAM/CCSM overestimate MJO intensity in the West Pacific sector. Preliminary results suggest that an improved representation of low-level moisture convergence may be linked to the more realistic Indian Ocean MJO disturbances in the SPCAM-SOM.