

The Impact of Convection Improvements on Intra-Seasonal Variability in CCSM3.5

The development version of the NCAR Community Climate System Model (CCSM3.5) includes two major changes to the parameterization of deep convection. The addition of Convective Momentum Transport (CMT) and a dilute reference convective parcel calculation strengthen significantly the tropical intra-seasonal variability. CMT and dilution changes included separately have marginal impact on the variability. It is when both changes are combined in the same integration that the intra seasonal variability is enhanced to be in better agreement with observations. Additionally, the coupled configuration of CCSM gives rise to a further improvement in the intra-seasonal variability when compared with prescribed SST simulations, even though the SST is obviously further from observations. These significant non-linear effects and the influence of including an interactive ocean are investigated.