

Moisture Convergence experiments in CAM

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Moisture convergence has been linked to MJO initiation and is integral to the first and second hypotheses of DYNAMO. A potential link between moisture convergence and the MJO is through variations in the vertical structure of heating associated with the transition of convection from shallow to deep to organized. The aim of this project is to quantify the moisture convergence as it relates to latent heating profile variability that might be responsible for MJO initiation and evolution. We use a modified version of CAM4 that can accept added heating with fully interactive physics. This nudged model is significantly better at capturing the MJO than the CAM control run. We also use latent heating profiles motivated by observations made during the DYNAMO field campaign as input. The questions we hope to answer include: What is the nature of moisture convergence (vertical structure, spatial distribution, phase average, etc.) in the control CAM? How does changing the latent heating profile in the Indian Ocean (doubling or halving, making more top heavy or bottom heavy, etc.) alter the nature of the moisture convergence and MJO simulation? Do the latent heating profiles retrieved in the field help make a more realistic MJO?