

AMIE/DYNAMO-CRM-CPM Inter-comparison Project.

- ▶ Scientific Questions
 - What processes (or lack thereof) are responsible for bias in GCM/GCPM simulated MJO (moisture mode?, cloud long-wave feedback? , surface fluxes?, diurnal cycle? Cold pools?)
 - What are the upscale effects of microphysical biases, especially in suppressed and transition periods?
- ▶ Models included
 - CRM (SAM, U. Miami)
 - CRM (GCE, NASA)
 - CRM (WRF, PNNL)
 - GCPM (MPAS, NCAR)
 - GWRF (with cumulus parameterization, PNNL).

- ▶ All should start on Nov 6 and end Nov 26.
- ▶ Model output frequency 6 hours or less.
- ▶ Minimum output variables
 - 3D variables (temperature, spec humidity, zonal and meridional wind, vertical velocity, height/pressure level)
 - 2d variables (rain rate, surface fluxes, 2m /10 m wind, spec humidity, temperature)
- ▶ Recommended output variables if available
 - 3D variables (reflectivity, hydrometeor mixing ratio, latent, radiative and pbl heating)



Analysis Plan

- ▶ Relative humidity vs cloud height (using KAZR, S-Pol, SMART-R).
- ▶ Heating profiles (Q1 including radiative heating, Q2 using the sounding analysis).
- ▶ Vertically integrated MSE budget during suppressed and transition stage.
- ▶ Surface fluxes, cold pools (using RV Reville surface and pbl data).
- ▶ Convective/stratiform area, rain-rate statistics.
- ▶ Qualitative comparisons of radar hydrometeor ID and model mixing ratios.
- ▶ Make statistical summaries of variables and model runs available online in addition to model output. PDFs of variables in addition to means.

Running the simulations

- ▶ Univ. Miami SAM (Janiga)
- ▶ NASA-GCE (Li)
- ▶ NCAR-MPAS (Pilon)
- ▶ PNNL-WRF (Hagos)

Model data management and sharing

- ▶ Portal at NERSC (Hagos)

<http://portal.nersc.gov/project/cpmmjo/>

Analysis (Inter-model and with OBS)

- ▶ PNNL (Hagos, Feng, Burleyson, Long)
- ▶ Univ. Miami SAM (Janiga, Zhang, David?)
- ▶ Univ of Washington (Powell, Rowe, Barnes, Houze?)
- ▶ CSU (Rutledge, Johnson)
- ▶ Texas A&M (Fiaz, Schumacher?)
- ▶ Nasa (Li, Tao)

Time line

- ▶ Simulations be done June 1.
- ▶ Preliminary analysis meeting September 1 (telecon).
- ▶ Preliminary analysis to be reported at the 2014 Fall meeting.