**Workshop objectives:**

(i) Review and summarize the status of data (collection, quality control, comparison, products) and modeling activities;

(ii) Exchange the latest scientific results and ideas;

(iii) Identify new science issues, set goals for the next phase of research, and make a roadmap of synthesizing research results.

- 119 participants from 9 countries (including remote participants via teleconferencing)
- 107 posters
- 7 plenary overview talks
Data and Products

- The DYNAMO Data Archive (http://data.eol.ucar.edu/master_list/?project=DYNAMO) currently includes 96% of the field data;
- Links between the DYNAMO, CINDY, AMIE data archives are provided for one-stop data search;
- All archived field data will be released on March 31 for public use (DOE ARM data have been released at near real time):
  (a) six types of radars from Addu/Gan, Manus, R/V Revelle and Mirai, and P-3;
  (b) ~ 26,000 sondes (including both upsondes and dropsondes) from 71 sites;
  (c) Surface flux data from R/V Revelle and Mirai;
  (d) Upper ocean biochemistry data from R/V Revelle and Mirai;
  (e) Profiles of current, temperature, salinity and microstructure from R/V Mirai and Seagliders
  (f) Surface meteorological data (including radiation) from Gan, Manus, R/V Sagar Kanya and Baruna Jaya;
  (g) Aerosol data from R/V Revelle,
Data and Products (cont.)

Data products to be released between June and August 2013:

(a) Uniform radar rain rate estimates at Addu, R/V Revelle and Mirai
(b) Combined radar latent and radiative heating profiles at Gan
(c) Updated cloud microphysics ID labels at Gan
(d) Q1, Q2, and forcing data for the two sounding arrays and at Gan
(e) Updated COARE flux algorithm 4.0
(f) Local MJO indices at Addu, Manus, and Darwin
Modeling

- Simulations/hindcasts by cloud system resolving models of local, limited and global domains, coarse resolution (with parameterized convection) models of regional and global domains, and atmospheric, oceanic, and coupled models.
- Evaluation of kill for rainfall forecast
- Extension of the MJO Vertical Structure and Heating Profiles Project under the MJO Task Force (MJOTF) and Global Atmospheric System Studies (GASS):
  (i) adds the 2011 November MJO event during the field campaign as the third case;
  (ii) adds limited-domain and local cloud system resolving models to the project.
Scientific Issues:

_DYNAMO hypotheses:_

I. Interaction between convection and its environmental moisture
II. Cloud population evolution
III. Air-sea interaction and upper-ocean processes

_Emerging science issues:_
(a) Cold pool, its structure, evolution, air-sea interaction, and role in MJO initiation;
(b) Dry-air intrusion, its origin, structure, evolution, dynamics, and effects on MJO convection;
(c) Scale interaction between convective, diurnal, 2-4 day, synoptic, MJO, seasonal variations in convection and the circulation;
(d) Necessary and sufficient conditions for MJO initiation;
(e) Convective organization vs. stochasticity during MJO initiation;
(f) Ocean dynamics (e.g., equatorial waves, near inertial waves, the Wyrtki jets, the thermocline ridge, Langmuir circulation) and its role in MJO initiation;
(g) Large-scale atmospheric dynamics (e.g., vertical wind shear, upstream and extratropical influences, upper-level perturbations, moisture transport and convergence, the ITCZ) and its role in MJO initiation;
(h) MJO and non-MJO convective activities; “failed MJO” events.