

# DOE's role in CINDY2011/DYNAMO

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# DOE ACRF MJO Investigation Experiment (AMIE)

- AMIE-Manus
  - ARM site at Papua New Guinea enhanced by C-band polarimetric radar, 8/day soundings, and a surface flux tower to study the evolution of convective clouds within the MJO **[funded]**
- AMIE-Gan
  - 6-month Gan Island deployment of the ARM Mobile Facility 2 (AMF2) to help test Hypotheses I and II, esp. through humidity and 3-D cloud property retrievals and variational analysis forcing data set **[in review]**

# AMF2 instruments to observe winds, humidity and clouds

## Profile observations

- Radiosonde
- Wind profiler
- Ceilometer – cloud base < 7 km
- Cloud + precip radars – cloud boundaries, LWC and IWC profiles, hydrometeor motion
- Lidars (single and high spectral resolution) – cloud boundaries, optical depth, and phase
- Sounding spectrometer – T and humidity profiles, cloud optical depth and effective radius

## Surface/column-integrated observations

- Basic met – P, T, RH, wind, precip
- Infrared thermometer – surface T
- Microwave radiometer – PWV and cloud LWP
- Multi filter rotating shadowband radiometer – PWV
- Upwelling and downwelling broadband radiation – cloud radiative forcing
- Total sky imager – cloud fraction
- Eddy correlation – surface fluxes of LH, SH, turbulence, CO<sub>2</sub>
- Aerosol observing system