

# Overview of modeling- relevant ARM activities for Fall 2008 CMWG meeting

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## Budget is tight through FY09

- So, some of my initiatives to extend the spatial reach of our sites ("Beyond the Soda Straw") are slowed considerably
  - like greatly expanded radar capabilities and small UAVs
- Sunset Comm is once again active
  - Extended Facilities OSSE: number and distribution (Xie)
- Nevertheless, using our various budgets and SBIR we are moving forward on many fronts

## Places we are moving forward on extending our spatial reach

- Vertical Velocity Focus Group
  - moved two wind profilers into CASA radar array
- 7 years of in situ aerosol profile data over SGP
- RACORO: Jan to June 2009 (low clouds, SGP)
- Putting WACR 94 GHz radar on scanning pedestal during next 6 months
  - SGP for checkout, then Azores, then Steamboat Springs
- Fall 2010 deployment at Oliktok Point with tethered balloon (and maybe guest small UAVs)
- Cloud tomography IOP under review

## SBIR efforts to extend spatial reach

- In-situ lidar in Phase II: bridges from aircraft sampling scale to model scale
  - will arrange test flights
- 2-freq radar for volume LWC
  - may become independent 35 GHz radar that can co-scan with SWACR

## More places we are moving forward

- Climate Model Best Estimates datasets
- New MWRs chosen and on order (adding 90 GHz)
  - rain mitigation being actively pursued
- Archiving radiation model intercomparison data
- New competition for DOE's climate modeling program (CCPP) mentions ARM and ASP data
- new ARM Science Plan -- even more modeling oriented

# Deployments driven by modeling needs

2007: COPS (effect of orography on precip)

2009:

- RHUBC-II: Chile, far-IR spectrum important for radiative cooling of upper troposphere
- AMF to Azores after China, staying till Nov 2010, to study marine boundary layer clouds

2010: Sparticus (Mace): routine flights in cirrus

2011: Precip IOP

- joint with NASA's GPM Ground Validation project

## Past Meetings

- GCSS, June 08
  - 70+ people working on cloud paramz'n
  - water isotopes (Bony)
  - creation of an open-air cloud laboratory
- ARM Futures workshop , Oct 08
  - diurnal cycle
  - trade cumulus
  - BBHRP testbed

## A possible overall strategy

Create the GCSS open-air cloud laboratory at SGP

Shrink SGP to 100x100 km and redesign the EFs (layout and instruments) using OSSEs to provide good input for running CRMs and even LES's

Implement the Multiscale Observing Facility using scanning radars and microwave tomography

Use controlled releases and chaff to study entrainment, indirect effect, cloud life cycle