Aerosol Indirect Effects Focus Group

- Goals
- Strategy
- Focus
- Relation to Other Work

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3. Quantify uncertainty in indirect effects simulated by
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4. Reduce uncertainty in simulated indirect effects in global models by 50%.

Strategy

- For past (M-PACE, MASRAD) and future (CLASIC, ISDAC) IOPs:
  - Measure winds, T, RH, aerosol size distribution and composition, CCN(S_w), IN(S_i,T), N_d, N_i, LWC, IWC, droplet size dist, crystal size dist.
  - Stratify the data to isolate aerosol effects from dynamic effects.
  - Perform closure experiments for CCN, IN, droplet nucleation, crystal nucleation, and rain initiation.
  - Evaluate turbulence, N_d, N_i, LWC, and IWC simulated by cloud-resolving and single-column models given prescribed aerosol and boundary conditions.
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  - Compare cloud-resolving and single-column simulations.
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- Refine models, re-evaluate, and apply indirect effects packages to global models.
- Evaluate simulation of indirect effects processes in global models.

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- What activities give the aerosol indirect effects focus group its identity?
- The design, implementation, and application of aerosol indirect effects field experiments provides the focus that defines the identity of the aerosol indirect effects focus group.

How does the Aerosol Indirect Effects mission relate to other work inside and outside of ARM?

- ARM
  - Cloud Modeling
  - Cloud Properties
  - Aerosol
  - Clouds with Low Optical [Water] Depths
  - Radiative Properties
- DOE Atmospheric Science Program
  - Improved aerosol modules
  - MASRAD/MASE
  - CHAPS/CLASIC
  - ISDAC?
- NSF
  - DYCOMS-II, VOCALS
  - Global modeling (Morrison)
  - Center for Multi-scale Modeling of Atmospheric Processes
- NASA
  - Field experiments (HSRL at ISDAC?)
  - Satellite retrievals and analysis (MODIS, CloudSat, CALIPSO, ..)
  - Cloud (Tao, Xu) and global (GISS, GMI) modeling
- NOAA
  - Field experiments (RICO,…)
  - Cloud and global modeling (GFDL)