Low Clouds Group: Accomplishments

- Observational analysis of SST/Low Cloud correlations using CERES data (Eitzen/Xu/Wong, LaRC)
- IPHOC ready for testing in SP-CAM (Cheng/Xu, LaRC)
- ADHOC (Lappen/Randall/Yamaguchi, CSU)
- HOC development (Firl/Randall, CSU)
- CFMIP/GCSS intercomparison (StonyBrook; LaRC; UW)
- Parallel column modeling frameworks
  - UCLA/CSU: ensemble forcings from aquaplanet runs
  - UW: steady forcings from SP-CAM composite regimes

Low Clouds Group: Near-Term Activities

- Column Modeling
  - GCSS/CFMIP LES Intercomparison (UW/StonyBrook/LaRC)
  - Vertical Adaptive Grid (Marchand, UW)
  - High-order closure (CSU; Utah; LaRC)
  - RRTM radiation parameterization (UW; Pincus)
- Transitioning towards MMF
  - IPHOC turbulence closure (Cheng/Xu, LaRC)
  - Morrison microphysics (Liu/Ackerman, UW)
  - Cloud-aerosol interactions (PNNL)
- MMF runs going real soon now
  - MMF250m (Ackerman/Bretherton/Marchand/Blossey, UW)
- Analysis of existing MMF simulations
  - Writeup of analysis of 4xCO2 runs (Wyant/Bretherton, UW)

Low Clouds Group: Renewal Plans

- Application-driven model development
- Focus on parameterization and resolution changes that:
  - improve simulations of low clouds in current climate
  - enable simulations of cloud-aerosol interactions and low cloud feedbacks.
- Benchmarking complementary approaches changes to improve low cloud simulation ahead of MMF simulations.
  - HOC, better numerics, microphysics, mini-LES
  - Continuing development alongside evaluation in MMF/quasi-3D/GCRM.
- Two-moment microphysics to evaluate cloud-aerosol interactions -- parallel to cloud-aerosol GCM work in next IPCC round.
- Two five-year MMF250m runs in 2013-2015?
- Benchmark LES of low clouds in spirit of GigaLES runs.
  - Simulate pockets-of-open-cells (POCs): cloud-aerosol interactions
- How can CMMAP complement PNNL cloud-aerosol efforts?