Cotton's Group Plans for Participation in RICO

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Scientific Objectives of Cotton's group participation in RICO:

- Test the aerosol source model under development by PhD candidate Liz Zarovy.

The model will incorporate aerosol source functions for mineral dust, sea salt, biomass burning emissions, and sulfates. The modeled aerosol distributions, including GCCN and CCN distributions, will be compared to ground and satellite based measurements from RICO, for model verification. We plan on running it in realtime to predict what aerosol sources functions are operational at the time of the field campaign. This would include GCCN concentrations and possibly CCN concentrations, although the latter is less likely by December 2004.

- Perform realtime forecasts of clouds and precipitation during RICO using RAMS with 2-3km grid spacing over the experimental area.

We expect RAMS forecasts should provide useful guidance to the daily operations during the experiment. Along with daily web-based products, text forecasts will be prepared by the Cotton group that will incorporate our interpretations of model forecast products. The text forecasts will be archived on the JOSS archival and links to the web products will be posted on the JOSS site as well.

- Participate in the field program to identify cases suitable for testing our cloud microphysics parameterization, our single-column boundary layer cloud model, and the cloud-nucleating aerosol (CCN/GCCN) source model.

In addition, we have a NASA grant to develop an ensemble Kalman-filter approach to retrieving CCN/GCCN concentrations. RICO data will provide the opportunity of evaluating its performance as well.