

***MEASURING THE RAINDROP SIZE DISTRIBUTION, ARM'S
EFFORTS AT DARWIN AND SGP***

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*For Presentation at the
ARM Science Team Meeting,
Albuquerque, NM
March 27-31, 2006*

February 2006

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ABSTRACT

ARM has purchased two impact disdrometers for indefinite deployment. One is currently installed at the Tropical Western Pacific (TWP) Darwin facility and the other will be deployed at the central facility of the Southern Great Plains Site this spring. The disdrometers make measurements of raindrop diameter in 20 size bins over the range of 0.3 to 5.0 mm once a minute. Many valuable quantities are calculated from the size distribution data including rainfall rate, rain amount, liquid water content, radar reflectivity, kinetic energy, and number density. In addition, the slope and intercept of a fit assuming a Marshall-Palmer type number density distribution are derived. The disdrometer data can be used to evaluate C-band and MMCR retrievals of raindrop size distribution. The rain drop distribution and the rain rate data will also be useful in the upcoming land surface/cloud interaction experiment, CLASIC, set to take place in 2007. A tipping bucket rain gauge accompanies each disdrometer. They also report rain amount and rainfall rate once a minute and serve as a check on the disdrometer's performance. Some analysis methods for comparing the two techniques of measuring rain amount are under study. The Darwin disdrometer will be operational during the TWP International Cloud Experiment. The preliminary results will be presented at the ARM Science Team Meeting. Acknowledgements: Troy Culgan and Rex Pearson Australian Bureau of Meteorology/ARM-TWP Operations Sutanay Choudhury Pacific Northwest National Laboratory.

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