PRELIMINARY COMPARISON RESULTS OF FOUR DIFFERENT TYPES OF DISDROMETER IN THE DEVEX EXPERIMENT

P. Golé (1) and the DEVEX Team
(1) CETP (peter.gole@cetp.ipsl.fr / [+33 1 3925 4824]

The DEVEX experiment (Disdrometer EValuation EXperiment) was conducted in the spring and summer of 2002 by institutions from the U.S., Canada, and France to compare measurements of rain drop size distributions measured with different types of disdrometers. The instruments were located closely to each other so as to provide information on the same rain events. The experiment took place at the Iowa City Municipal Airport, in Iowa City, IA. Other instruments at the site were a tipping bucket rain gauge, a vertically pointing X-band radar, an anemometer, and a wind profiler.

Determining the size distribution of rain drops is important in many fields such as remote sensing of precipitation, radio wave propagation through rain as well as ground-based weather radars. The present work describes the first results obtained by comparing instruments based on different measurement principles. Rain gauges, which are simple instruments, only give an integrated estimate of rain. However, this estimate is very accurate and was used in the experiment as a reference for the comparison between disdrometers.

The results presented here show that the various instruments may give strongly deviating results according to the rain rate range of interest.

The objective of this work was to show the advantages and drawbacks of each of these measurement principles in the various types of rain events encountered during the DEVEX experiment.