

## **The Balloon-Borne Particle Size, Image, and Velocity (PASIV) Probe Used in the Deep Convective Clouds and Chemistry Experiment**

Intended for the Cloud Electrification Processes Session

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During May-June 2012, a team from the National Severe Storms Laboratory flew balloon-borne instruments into thunderstorms in Oklahoma and Texas during the field campaign for the Deep Convective Clouds and Chemistry Experiment (DC3). The balloon-borne instruments consisted of a Vaisala RS92-SGP radiosonde to measure location and standard thermodynamic variables, an electric field meter (EFM) to measure the vector electric field, and a Particle Size, Image, and Velocity (PASIV) probe. The PASIV probe consists of an HD video camcorder (Panasonic Model HDC-SD9) and a PARSIVEL laser disdrometer to provide the size, shape, phase, velocity, and number density of sampled particles.

Our goal in flying PASIV was to provide the vertical distribution of size spectra for various types of particles for use in verifying the microphysics modules of numerical cloud models and the hydrometeor classification schemes of polarimetric radars, as well as to help improve understanding of storm electrification processes. This paper will present data collected from two deployments during the DC3 campaign, including particle size distributions for various types of particles relative to the lightning, electric field, and kinematic structures of each case.