



A network of disdrometers to investigate the variability of the microstructure of precipitation at the radar pixel scale

J. JAFFRAIN, A. Berne, A. Studzinski, and F. Pantillon
LTE, EPFL, Lausanne (joel.jaffrain@epfl.ch)

The microstructure of precipitation, in particular the *raindrop size distribution* (DSD hereafter), is of primary importance for quantitative interpretation of weather radar measurements. As an indirect measurement, radar rain rate estimation depends on the DSD via the Z-R relationship. As precipitation, DSD is characterized by a strong variability in space and time. In order to investigate the effect of the DSD variability at the pixel scale on radar rain rate estimation, a network of disdrometers has been set up. It consists of about 15 optical disdrometers PARSIVEL that are autonomous in terms of power supply (battery, solar panel) as well as data storage (data logger). The network is designed for real-time access and monitoring of data, favoring remote communication (radio modem and GPRS) for data transfer. The network is deployed on EPFL campus over a typical operational radar pixel ($\sim 1 \times 1 \text{ km}^2$) since late 2008. The first analyses highlight the uncertainty associated with DSD measurements as well as the variability of the DSD of precipitation over 1 km^2 .