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Precipitation variability studies with X and K band radars

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The focus of this presentation is to study the variability of precipitations both temporally and spatially within a given rain system. To do so, we use a newly developed local area X Band radar and K band Micro-rain radars. The X band radar main feature is his high spatial and temporal resolution (60 meters and 30 seconds) over a range of about 20 kilometers for a fixed elevation. The MRR provides profiles of rain reflectivity as well as drop size distribution up to 3 kilometers with a height resolution of 100 meters. In addition, rain gauges and a disdrometer are available to determine the rain received on the ground. The combined analysis of the different instruments will help us investigate the variability of the rain field within precipitating events and define the associated ***Z-R*** relationships. In particular, we have noticed that rain characteristics and intensities could largely and rapidly vary within a single precipitation event, and that accounting for those different regimes could positively impact the retrieval of rain rates from the X band radar.