



More evidence of correlation between bright band characteristics and the Z-R relationship in stratiform rainfall

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Drop size distributions (DSDs) present a significant variability both in time and space, and this variability represents a limitation to quantifying rainfall, R , from radar measurements of reflectivity, Z . Previous studies have characterized this variability and analyzed how the main physical processes (such as the degree of aggregation or riming) result in characteristic DSDs, which imply significant differences in Z-R relationships. Here, the correspondence between the characteristics of the bright band and the Z-R relationship at ground is first studied by comparing the measurements of a high-resolution UHF wind profiler with a collocated POSS disdrometer located in Montreal, Quebec (Canada). A significant correlation has been found for a variety of cases, which suggests a possible application to improve the quality of rainfall estimates at ground from operational radar measurements. Practical implementation of this result has also been investigated using measurements of the McGill S-band radar.