# VALIDATION OF ATTENUATION CORRECTION AT X-BAND FREQUENCIES USING DUAL-POLARIZATION

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Attenuation correction is of great importance to quantitative rainfall estimation and retrieval of raindrop size distribution parameters (DSD), especially at C-band and X-band frequencies. Recent papers (Bringi et al. 2001; Le Bouar et al. 2001; Testud et al. 2000) evaluated the attenuation at C-band radars and proposed several attenuation correction algorithms conceptually based on differential propagation phase ($\Phi_{dp}$) constraint. However, limited results are available done at X-band frequencies. The "self-consistent method with constraints" suggested by Bringi et al. (2001) is adopted for X-band frequencies here, and evaluated during the Global Precipitation Mission ( GPM ) pilot experiment. During this experiment, the X-band radar (NOAA X-pol) and CSU-CHILL radar observed common areas, also sampled by ground disdrometers. Reflectivity ($Z_h$) and differential reflectivity ($Z_{dr}$) are corrected for rain attenuation. To validate the correction algorithm, the corrected reflectivity ($Z_h^c$) and the corrected differential reflectivity ($Z_{dr}^c$) are compared to the values computed from the disdrometers. The rainfall estimated from a R(Z) relation are also compared against those derived from $K_{dp}$. A composite algorithm to estimate the rainfall rate from $K_{dp}$ and $Z_h^c$ is also evaluated.

[References]

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