



Development of Radar Reflectivity-Snowfall Rate Relationships at Multiple Wavelengths

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In-situ aircraft measurements of particle size distributions and both direct and indirect estimates of particle mass are used to calculate snowfall rates (S) from a number of NASA field programs. Simultaneously, and in close proximity and time to these measurements, there are direct measurements of the radar reflectivity (Z) at X, KU, KA and W bands from overflying aircraft or from the ground. From these observations, Z-S relationships are developed. In the process, a range of backscatter cross-section models are tested against the radar measurements. We expect these relationships to be very useful for CloudSat, GPM and EarthCARE-derived snowfall products.