

Microphysical Observations in the Melting Layer of Precipitating Clouds

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In precipitating clouds, there is interest in the process of melting snow due to its importance in storm evolution. Observations of the melting layer are available from aircraft profiles during ten NASA field campaigns. During the OLYMPEX field campaign, nine melting layer profiles were found. Each melting layer was observed with a suite of airborne instruments that provide data on particle size, liquid water content, temperature, and relative humidity. Particle size measurements are integrated to determine total mass throughout the melting layer, which is directly compared to Nevzorov probe mass measurements. Such comparison is aided by conservation of mass through the melting layer and helps to quantify the uncertainty in total mass. The total mass and uncertainty is important for improving radar retrievals and numerical models. Such improvements can provide better rainfall total estimates and improve forecasts.