

# Contrast in ice cloud microphysics between the tropics and midlatitudes and its representation in models

**Paul Field**

*NCAR*  
*Boulder, CO 80301 USA*  
[\*prfield@ucar.edu\*](mailto:prfield@ucar.edu)

Microphysical rates involving snow in numerical cloud models can be written in terms of the moments of the snow particle size distribution (PSD). Moments of snow PSDs determined from aircraft data for tropical anvils and midlatitude stratiform cloud will be presented. Rescaled PSDs for tropical and midlatitude cloud show distinct differences that are possibly related to differences in the aggregation kernel. However, in spite of this difference, a single parameterization that is based upon IWC and incloud temperature to estimate moments of the snow PSDs applicable for both tropical and midlatitude regimes has been developed and tested. The results of implementing a similar parameterization within WRF/MM5 will also be presented. We find that the new parameterization leads to increased supercooled liquid water associated with thin layer cloud and reduced embedded supercooled liquid water within deep snow clouds.

