



Midlatitude thru tropical ice cloud properties from In-situ measurements

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Observations in midlatitude, low latitude, and tropical ice clouds have been collected from in-situ aircraft and balloon-borne probes for more than twenty years. In my talk, I will present the observations, focusing on how particles in ice clouds evolve in the vertical, as a function of temperature, and by ice cloud production mechanism (large-scale uplift versus convectively-generated). Emphasis will be given to the properties of the particle size distributions and the bulk properties (ice water content, extinction). I will address the issue of small particles, including a complete discussion of what earlier observations can be believed and what new instruments are available to make progress on this contentious issue.