

Jets, Bubbles, Spikes, and Breakups: How Ice Spreads in Clouds

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Most of the rain we experience forms not as liquid water, but as ice. In mid-latitude clouds, ice formation is a prerequisite for precipitation, but at temperatures warmer than $-36\text{ }^{\circ}\text{C}$, water droplets can only freeze heterogeneously with the help of particles called **ice-nucleating particles** (INPs). These INPs are very rare among atmospheric aerosols, and we still don't fully understand what makes one particle a more effective INP than another.

In this talk, I will explore how ice forms and multiplies in clouds through a combination of laboratory experiments from large-scale cloud chambers to individual levitated droplets. These studies shed new light on the involved processes that can lead to the rapid growth of ice in clouds and explain why clouds may contain far more ice particles than the number of INPs alone would suggest.