

## **Ice formation in the atmosphere - how does it work and why does it matter?**

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Clouds are not only fascinating to observe for their myriad of shapes, but are also scientifically challenging because their formation requires both knowledge about the large-scale meteorological environment as well as knowledge about the details of cloud droplet and ice crystal formation on the micro-scale. The ice phase in clouds remains enigmatic because ice crystal number concentrations can exceed the number concentrations of those aerosol particles that act as seeds for ice crystals by orders of magnitude. Over the years we have developed different measurement techniques to investigate both the seeds of the ice crystals as well as ice crystals itself in the laboratory and during numerous field campaigns in different locations. We investigate the climate impact of our measurements in numerical models to understand changes in the past climate and be able to more reliably project future climate.