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Does surface adsorbed water promote ice nucleation?

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Besides deposition ice nucleation directly from the vapour phase and immersion freezing of capillary condensed water, it has been suggested that ice formation at water sub-saturated conditions and low enough temperatures begins within a film of adsorbed water on an ice nucleating substance.
The parameters that can influence the probability of ice nucleation in an adsorbed water layer are the temperature and the nature of the particle surface, where the latter can be characterized by the amount of adsorbed water and the water-surface contact angle.
To elucidate the relationship between ice formation, water adsorption and the contact angle, we present new measurements of all three properties on several heterogeneous materials, including some highly active cloud seeding agents. Experimentally, ice nucleation on size-selected particles is measured as spectra of activated fractions in a broad range of temperature and saturation conditions, water adsorption isotherms are determined by a volumetric adsorption method and water-substrate contact angles are measured optically by placing small droplets on pressed powder pellets. For consistency, powder from the same parent sample is used for all three experiments.
The mechanism how ice nucleates from surface adsorbed water is explored by correlating the amount of adsorbed water and the water-surface contact angle to the probability of ice nucleation.