

ATS/CIRA Colloquium

Bernd Karcher

Visiting ATS from DLR, Germany

Homogeneous Ice Formation in Supercooled Water Clouds

Hosted by Paul DeMott

Friday, October 14, 2016

ATS room 101; Discussion will begin at 11:15am

Refreshments will be served at 10:45am in the weather lab

It is important to know the phase and physical properties of aerosol and cloud particles at the top of mid-level and high tropospheric clouds – anvils and the stratiform cirrus that originate from them – in order to better estimate their effects on the atmospheric energy balance, the moisture budget and regional circulation patterns. This talk revisits the formation of pristine ice crystals from homogeneous freezing of a population of cloud droplets - the most basic water-to-ice phase transition path in liquid tropospheric clouds - by means of a theoretical analysis of the involved processes. Characteristic differences of the phase transition in different freezing-growth regimes are illustrated by means of parcel simulations. Ramifications of the findings for the dynamical control of ice nucleation in cold cloud outflow regions are outlined.

Link to colloquium videos and announcement page: <http://www.atmos.colostate.edu/dept/colloquia.php>