## AMS 16<sup>th</sup> Conference of Cloud Physics

## Particle Shattering Analysis of Airborne Microphysical Probes Using IMPACTS Observations David Delene, Christian Nairy, Aaron Bansemer, Andrew Detwiler, Greg McFarquhar, and Andy Heymsfield

## Abstract (Due 21 April 2022)

It is known that tips and inlets on in-situ microphysical probes can cause significant shattering of large ice crystals, which adversely affect cloud particle concentrations and size distributions measurements. The implementation of anti-shattering tips and software processing methods help to mitigate shattering issues. Shattering of ice particles was apparent in the in-situ microphysical data gathered during the Investigation of Microphysics and Precipitation for Coast-Threatening Snowstorms (IMPACTS) field campaign. In-situ cloud probes that utilize probe tips and external sampling are compared to similar instruments housed within the probe itself where particle transect a tube. Comparisons are done under a number of cloud concentration conditions, along with different aircraft speed and orientations. The comparisons determine conditions under which both types of probe provide reliable measurements.