

**Conference:** 2013 Northern Plains Convective Storm Symposium in Grand Forks, North Dakota on May 13-14, 2013.

**Presentation:** May 13, 2013

**Title:** Concentration of Cloud Condensation Nuclei Before and After Convective Storms

**Authors:** David Delene<sup>1</sup> and Nicole Bart<sup>1</sup>

<sup>1</sup>Department of Atmospheric Sciences, University of North Dakota

**Abstract:** Cloud Condensation Nuclei (CCN) activation produces cloud droplets that can coalesce into rain drops. CCN number concentration is determined using a counter that pulls air into a supersaturated environment and counts the number of droplets that form. Researchers have operated CCN counters at the surface and on aircraft. Variations in sources and sinks of CCN control their atmospheric concentration. A major CCN sink is wet deposition where precipitation removes aerosols from the atmosphere. It is important to determine the extent to which precipitation controls CCN concentrations. The POLCAST-2012 field project made continuous surface-based CCN measurements between 25 June 2012 and 18 October 2012 in Grand Forks, North Dakota. CCN concentration at a supersaturation of 0.6 % varied from  $100 \text{ cm}^{-3}$  to nearly  $10,000 \text{ cm}^{-3}$ . Current research is investigating how precipitation reduces aerosol concentrations and how CCN concentrations affect convective storm development and forecasting skill.