



## **Analysis of ambient cloud condensation nuclei concentrations in a semi-rural setting**

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Given the importance of cloud condensation nuclei (CCN) to levels of incoming solar radiation and climate in general, it is essential that the aerosol-to-droplet nucleation process be well understood. A major uncertainty in this regard is the role of the aerosol organic component in promoting cloud droplet activation. In this study, we test our current understanding of aerosol activation by comparing measured ambient concentrations of CCN with concentrations calculated using Kohler theory. Sampling occurred in the fall of 2005 in a semi-rural setting 70 km north of Toronto which was influenced by clean air and by air from the more heavily populated south. Instruments used during the study included an aerosol mass spectrometer (AMS), an ultrafine condensation particle counter, a scanning mobility particle sizer, an aerodynamic particle sizer, and a thermal gradient diffusion CCN chamber. In particular, the AMS yields aerosol size-dependent composition information. Results build on our first study that was conducted on a busy street in downtown Toronto and are part of our ongoing efforts to examine the role of organic compounds in aerosol activation.