

Seminar Series 2012-2013

Southern Ontario Centre for Atmospheric Aerosol Research
University of Toronto

The Secret Lives of Filters



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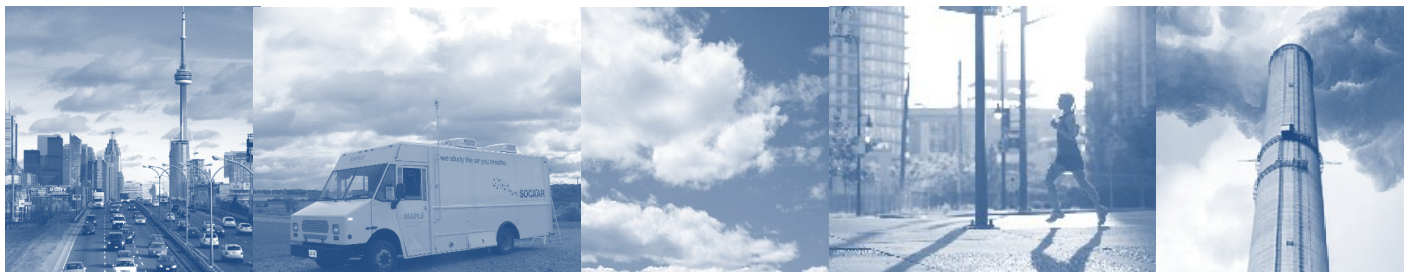
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Filters in forced air heating, ventilation, and air conditioning (HVAC) systems serve as passive sampling devices for airborne particles. By analysing the dust that deposits on a filter, we can achieve better estimates of human exposure to particle-bound contaminants. We have extracted and sequenced fungal and bacterial DNA from a wide variety of filters and see differences based on human occupancy patterns, building location, season, building type/use, and building age and history. Additional results for heavy metals, phthalates, flame retardants, and other compounds suggest the value of this approach for a wide variety of particle-bound contaminants. Combining dust extractions with assessments of the system run-time, air flow rate through the filter, and the filter efficiency reveals a spatially and temporally integrated indoor concentration over the filter lifetime, which in turn provides a more robust picture of human exposure than traditional short-term air or settled-dust samples. This filter forensics approach has further value for exploring contaminant hot-spots and the spread of particle plumes.

April 3, 2013, 3 - 4 pm

Wallberg Building, 200 College Street, Room 407



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