

Seminar Series 2016 - 2017

Southern Ontario Centre for Atmospheric Aerosol Research
University of Toronto

Exploring trade-offs in the use of biomass for greenhouse gas mitigation

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Increasing concern over fossil fuel use and greenhouse gas (GHG) emissions has led to growing interest in the use of biomass (i.e., plant material and organic waste) for both energy and materials. Around the world, government programs primarily incentivize use of biofuels in the transportation sector. In contrast, few policy drivers exist to encourage the use of biomass for the production of chemicals, an industry which is currently among the largest users of fossil fuel and which is responsible for approximately 7% of global GHG emissions.

To guide efficient resource use, this talk explores certain tradeoffs in the use of biomass for GHG mitigation in a U.S./North American context. In particular, this research addresses key questions, such as 1) are greater GHG reductions achieved when using bio-ethanol as a transportation fuel, or as a chemical feedstock? 2) within the plastics sector, are greater GHG emission reductions achieved by switching to bio-based plastics, or more simply by producing conventional plastics with renewable energy? This talk will also discuss recent work showing 3) how economic/market response can substantially undermine or reverse the GHG benefits from biofuel policies. The results of these studies shed light on the uncertainty present in the life-cycle GHG emissions from bio-based products, and make concrete recommendations to set priorities in the use of biomass for GHG mitigation.

Wednesday, April 5, 2017, 2:00 – 3:00 PM

Wallberg Building, 200 College Street, Room 407



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