

October 7, 2022

2x PhD positions: (1) studying wildfire emissions; (2) tree mercury cycling and archiving.

Assistant Professor Dr. David McLagan, PI of the Fire, Earth, Water, Air Contaminant Biogeochemistry Lab in the [School of Environmental Studies](#) (SES) and

: Candidates should have a MSc in environmental sciences. PhD Project 1 will focus on the development and application of novel monitoring platforms that will be used to study a range of contaminants emitted by fires using both established and more experimental atmospheric monitoring instrumentation. The student will be involved in the calibration and evaluation of novel monitoring systems and the study of emissions and plume chemistry in both human controlled burning practices and wildfires; such near-source study of fire emissions is limited due to the logistical challenges of active fire research. PhD Project 2 will utilize a series of experiments both near-source and at remote (background) locations with analyses led by Hg [stable isotopes](#) (and carbon characterization methods) to: (i) assess and characterize the potential of trees to archive historical atmospheric mercury levels and how this differs by species; (ii) study in detail the chemical compounds and physiological processes that control the uptake, transport, transformation, and fate of mercury within trees. The uptake of mercury by vegetation is the major sink of atmospheric mercury to terrestrial systems. Hence, it is critical to understand the internal mercury cycling in trees across different species and biomes and how varies

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