PhD Department Seminar 6003

John MacInnis
Department of Chemistry

Tuesday, October 15, 2019, 1:00 – 1:50 p.m.
Room A1046 (Arts and Administration Building)

Title: Elucidation of long-range transport and fate of perfluoroalkyl substances in the High Arctic of Canada

Abstract:

Per- and polyfluoroalkyl substances (PFAS) are anthropogenic chemicals that were manufactured since the 1950s (1). PFAS are used for a number of industrial and commercial applications related to fluoropolymer manufacturing and surface treatments imparting stain, oil, and water repellency (1). The detection of PFAS in remote environments, such as the Arctic, where they are neither produced nor used, demonstrates they undergo long-range transport. It has been suggested that the long-range transport of PFAS to the Arctic occurs through the ocean, atmosphere, or some combination of the two (2). An effective strategy for understanding long-range transport is through remote sample collection. In particular, ice caps and landlocked Arctic lakes are useful for studying long-range atmospheric transport because they only receive atmospheric pollution. Several studies have demonstrated the importance of long-range atmospheric transport on the occurrence of PFAS in the Arctic (3–4); however, their post-depositional transport and fate in the Arctic is a current knowledge gap, especially for environments that are responding rapidly to climate change. The goal of this work is to improve current understanding of the long-range transport and fate of PFAS through remote sample collection on an ice cap and landlocked Arctic lakes that are responding rapidly to climate change.