

SEMINAR SERIES 2023 - 2024

SOUTHERN ONTARIO CENTRE FOR ATMOSPHERIC AEROSOL RESEARCH
UNIVERSITY OF TORONTO

Source identification and apportionment of industrial volatile organic compounds through mobile monitoring



Robert Healy PhD
Senior Science Advisor, Air Quality

Ontario Ministry of the Environment,
Conservation and Parks (MECP)

Despite a decline in emissions of its precursors in recent decades, ground-level ozone remains an air quality issue in southern Ontario. The Michigan-Ontario Ozone Source Experiment (MOOSE) was a multi-organization field campaign aimed at studying ozone and its precursors in the border region. Ontario's participation in the MOOSE study involved investigating industrial emissions of volatile organic compounds (VOCs) using a mobile monitoring platform. Positive matrix factorization (PMF), a tool typically used to apportion air pollutants to their respective sources using monitoring data collected at fixed sites, was applied to high time-resolution VOC data collected using the mobile laboratory. Monitoring was performed over a five-day period in an industrialized airshed in southwestern Ontario containing refineries, chemical production facilities and a chemical waste disposal facility. PMF factors associated with petroleum, chemical waste and rubber production were identified and ambient mixing ratios of selected VOCs were apportioned to local and background sources. Fugitive emissions, predominantly associated with storage, were found to be the dominant local contributor to ambient benzene measured while mobile. The approach applied here facilitates the apportionment of VOCs to local sources in complex industrial environments at high spatial and temporal resolution. This information can be used to pinpoint fugitive source locations and to inform VOC emission abatement actions.

Wednesday, April 3, 2024 3:00PM - 4:00PM EDT

Join Us Online: **MS Teams Meeting** - Click [HERE](#) to join
Meeting ID: 234 317 205 915
Passcode: UubSfx

