Rocky Mountain States Section AWMA - 2025 Lunch & Learn Series

Source apportionment of VOCs in Commerce City using Positive Matrix Factorization
Speaker: Elizabeth Wallace, Dispersion Modeling Unit at CDPHE

Wednesday, February 19, 2025
12pm-1pm Mountain Time
Join virtually: https://meet.google.com/uem-efjh-vxe

Presentation Summary
Volatile organic compounds (VOCs) encompass a wide range of air pollutants originating from both natural and anthropogenic sources, contributing to adverse environmental and public health outcomes. Quantifying the impact of VOCs from various sources on air quality is a complex but necessary challenge in Commerce City, Colorado due to its disproportionate exposure to industrial pollutants and socio-economic vulnerabilities. This study identified the major point and nonpoint sources of VOCs, primarily alkanes, H2S, and BTEX compounds, as well as CO2, CO, and NOx in the North Denver Region using Positive Matrix Factorization (PMF). This presentation will detail the procedures established within the research framework to ensure robust VOC source apportionment when utilizing disparate datasets, and describe the significant findings related to major pollution sources in the region and their implications for environmental justice.

Presenter Bio
Elizabeth Wallace is an environmental engineer and researcher with experience in ambient air monitoring, air quality modeling, and air permitting. Currently, Elizabeth works for the Colorado Department of Public Health and Environment's Dispersion Modeling Unit, where her research is focused on the use of multiple modeling techniques to assess cumulative air impacts in the North Denver region. Elizabeth also has experience in education and community outreach, including leading Colorado students through air and soil quality data collection for project-based learning and citizen science initiatives. Previous research with University of Colorado Boulder prioritized integrating quantitative data and community insights, bridging scientific findings with local experiences to enhance public understanding and engagement in environmental issues.