

SEMINAR

Mobile Lab Monitoring of Volatile Organic Compounds (VOCs) near an active suburban Oil and Natural Gas drilling Site in Erie, Colorado

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Oil and Gas is a major contributor to Colorado's economy. However, when new development occurs at or near setback limits (500 feet) to existing houses, citizens often report health effects. The Colorado Air Pollution Control Division (APCD) at the Colorado Department of Public Health and Environment (CDPHE) has built a mobile laboratory to conduct air sampling in response to oil and gas related health concerns. The Colorado Air Monitoring Mobile Laboratory (CAMML), is equipped with a commercial thermal desorption gas chromatography mass spectrometer and dual flame ionization detectors to quantify mixing ratios of 55 VOCs as well as instruments to measure ozone, oxides of nitrogen, CO, CO₂, methane, PM₁₀, PM_{2.5}, ammonia and hydrogen sulfide. In 2017, the CAMML was deployed to a location less than 1000 feet from an active oil drilling operation in Erie, Colorado. The lab was sited between a housing development and an active drilling site for a period of about 12 weeks. VOCs were measured hourly, using an integrated 30 minute, constant flow, collection on a chilled sorbent trap, while other gases and meteorology were measured once per minute. Approximately 3-4 weeks were spent at the site during each stage of the development process: drilling, hydraulic fracturing, and flowback. Chromatography quantitation was done using the open-source Igor Pro based TERN software, which performs peak fitting integration rather than traditional baseline integration. We report here measurements of the VOCs from this deployment, the first of many planned deployments of the CAMML. VOC mixing ratios are compared to Health Guideline Values compiled in a recent review paper.

Monday, February 25, 2019, 3:30 p.m

Refreshments 3:15 p.m

NCAR Foothills Laboratory

3450 Mitchell Lane, Boulder, CO 80301

FL2-1022, large seminar room

Live webcast: <http://ucarconnect.ucar.edu/live>

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