

MOOSE FIELD STUDY MEASUREMENTS NEAR STELLANTIS DETROIT ASSEMBLY COMPLEX

The [Michigan-Ontario Ozone Source Experiment](#) (MOOSE) was an air quality field study in the border region between the United States and Canada. A significant component of MOOSE is the mobile monitoring of Volatile Organic Compounds (VOCs) emitted by industrial facilities in southeast Michigan using advanced real-time measurement techniques. One of these techniques is Proton Transfer Reaction - Mass Spectrometry (PTR-MS), which can detect a wide variety of VOCs at very low concentrations in the air, and at a rapid rate, typically every second.

Aerodyne Research, Inc. (Aerodyne) used the measurement device on board a mobile laboratory in May and June of 2021 and monitored several industrial facilities in southeast Michigan, including the Stellantis Detroit Assembly Complex in Detroit, Michigan. Aerodyne measured concentrations of some VOCs above the predominant local levels near the Stellantis facility, mainly BTEX compounds (benzene, toluene, ethyl benzene, and xylenes). Levels of these pollutants did not indicate a public health concern from long-term exposure. The results showed the presence of some VOCs that should be studied in greater detail. These VOCs include solvents used in paint operations, like those at the Detroit Assembly Complex. The sampling cannot tell us exactly where the VOCs came from but can help us look at where higher and lower levels of VOCs were observed.

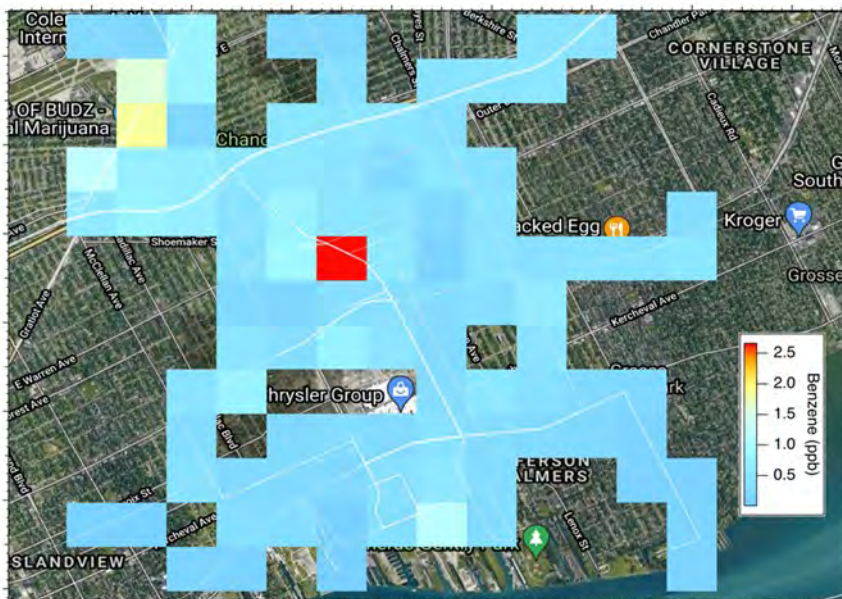


Figure 1: Average benzene concentration in parts per billion (PPB) for all wind directions measured near the Detroit Assembly Complex

The identification of the different VOC's led to further research into specific materials used at the Detroit Assembly Complex and to plan and conduct further sampling of the areas around the facility. For example, EGLE is looking into further analysis of PTR-MS data from the MOOSE study, as well as the use of other techniques such as sorbent tube sampling. [Geospatial Monitoring of Air Pollution \(GMAP\) sampling](#) by the US EPA's mobile lab and some 24-hour canister sampling

has been performed to better quantify human exposure to VOCs in the vicinity. Data is being shared with the Michigan Department of Health and Human Services and is being used in their health consultation, which will be shared with the public once it is complete.