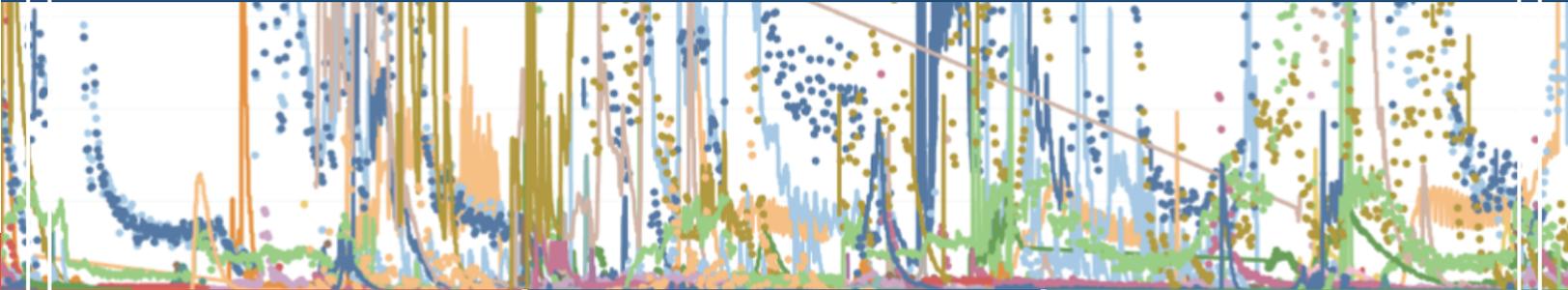


Air Quality Team Summary

The Social Justice and Environmental Quality (SJEQ) – Denver project funded by National Science Foundation is working in the communities of Globeville, Elyria-Swansea, Cole, and Clayton in Denver, Colorado to understand and improve the disruption from the major construction going on in the area. Our environmental engineering team goal was for community members to use personal environmental sensors to monitor their exposure to air pollution as they go about their day. Below is a brief summary of some of our accomplishments to date.



1. Choosing the Sensors



There are so many different air quality monitoring devices present in the market for consumer use. After research and testing we chose a sensor called the Atmotube. It is easy to carry and shows the real time personal exposure to air pollution through the app to its users.

The AtmoTube measures **PM1, PM2.5, and PM10** pollutants, like dust, traffic exhaust, pollen, soot, and mold, plus a wide range of **Volatile Organic Compounds (VOCs)**.

To better understand the air quality outdoors within the community we also use five QuantAQ sensors. These measure particulate matter concentrations (PM1, PM2.5, and PM10) and particle size distribution.

2. Testing the Sensors



One important question is how accurate are the air quality data shown by these low cost sensors? To find out our research team installed the AtmoTube sensors next to the CDPHE reference instrumentation at Globeville and I25.

We will study these data collected from these collocation projects to find out how accurate these low cost sensor measurements are compared to CDPHE highly accurate data.

3. Preparing the Sensors



After successfully testing the sensors, our team got the sensors ready to be used by the community participants.. We cleaned them and put them in a box with some additional items . such as a Carabiner and Key ring for participants to use while they are carrying the sensors around.



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4. Using the Sensors



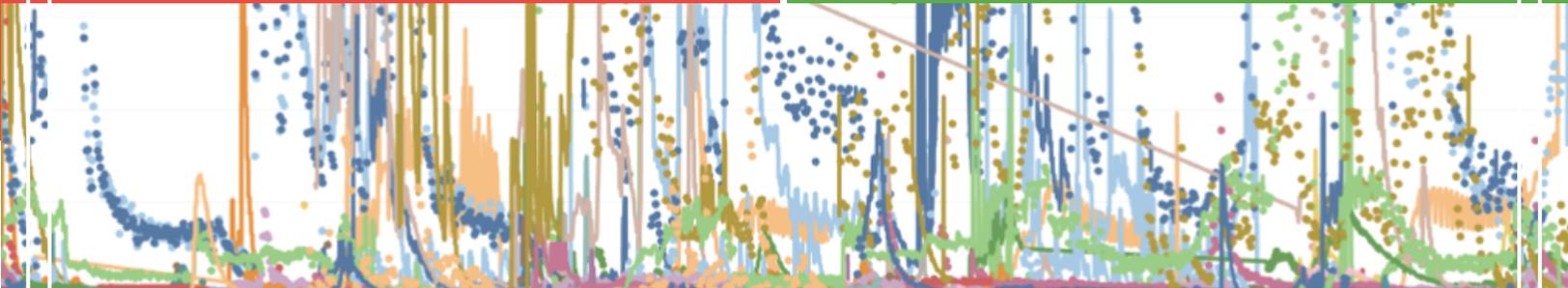
More than 50 participants from the communities joined our project and used the Atmotube sensors for an entire month, starting January 17th. The participants needed to keep the sensors within **two feet** of them and needed to connect the sensor to the app every day, a process that we call syncing. We finished this part of the project on March 4th. We also successfully deployed five QuantAQ sensors aq outdoors in the community for the whole cohort time period.

5. Taking a Look at the Initial Data



When participants synced their sensor, their air quality data was transferred daily to the cloud and we were able to look at raw data everyday. The picture below shows some of the initial data collected in February.

But of course this is not the end of the story.....!!!!!!!



What are we doing now?

We are currently working with all this initial data through a data processing method. We will correct the data using the data from the CDPHE colocation experiments. Finally we will study these air quality data looking for trends and information about air quality exposure within the community. We will also share what we learn with the communities and each participant personally.



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