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AIR SENSOR KIT PERFORMANCE TESTING AND POLLUTANT MAPPING SUPPORTS COMMUNITY AIR MONITORING PROJECT

EPA is conducting low-cost air quality monitoring sensor research to develop new devices and evaluate others that are commercially available. Air sensors have been used in citizen science projects to help communities learn more about local air quality. EPA's Ironbound Community project in Newark, N.J., is an example of a recognized citizen science project to assist residents impacted by multiple sources of air pollution, including highways, rail yards and a port.

South Coast Air Quality Management District Project

EPA is collaborating on a research project with the South Coast Air Quality Management District in Diamond Bar, Calif.. The project will assist EPA in gaining an enhanced understanding of fine particulate matter ($PM_{2.5}$) and ozone concentrations across the study area. The goal is to determine patterns of these pollutants in time and space using low-cost sensor technologies. The research project is expected to be completed by the end of 2017.

Researchers at EPA are providing technical expertise and guidance on a range of project components, including project design, deployment of air sensors, data collection, quality assurance, data interpretation, data visualization and public engagement.

Sensor components previously tested and compared to EPA's regulatory-grade monitors will be used to develop the low-cost air sensor devices used in the study.

The sensors will be evaluated for performance characteristics by a recognized sensor evaluation laboratory that has established research facilities in the target area (South Coast Air Quality Management District-AQ SPEC).

Evaluating performance characteristics of the sensors to be used in the study is important to ensure the data collected will meet study requirements. As many as ten of the sensor devices will be placed in select areas designated by EPA to provide one minute interval air concentration data for $PM_{2.5}$ and ozone over multiple seasons.

The deployed sensor devices will operate continuously. Advanced technologies including solar power generation, micro-computer data processing, and specialized circuit board plug-and-play features will facilitate data collection.

The project will provide critical information regarding sensor performance and data quality, and promote successful

Solar powered sensor device

development, deployment and accessible use of the low-cost technologies for air quality monitoring, especially in a large geographic study area.

RESOURCES:

Online Air Sensor Toolbox
https://www.epa.gov/air-research/air-sensor-toolbox-citizen-scientists

Ironbound Community Fact Sheet
https://www.epa.gov/air-research/ironbound-community-citizen-science-toolbox-fact-sheet

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