

ADVANCED AIR MONITORING STRATEGY AND IMPLEMENTATION

Leveraging enhanced environmental monitoring technology

PROJECT SUMMARY

The Advanced Monitoring Project fostered understanding of the application of advanced monitoring technologies, strengthened the quality of real-time monitoring data generated, identified new technologies as they emerged on the market, developed data interpretation guidance, and promoted standardization of data collection and exchange.

Efforts were led by the EPA Office of Air and Radiation and the Office of Research and Development, in collaboration with state and tribal partners.

PROJECT LEADS

Ron Evans

U.S. EPA Office of Air and Radiation
evans.ron@epa.gov
919-541-5488

Kurt Rakouskas

Environmental Council of the States
krakouskas@ecos.org
202-266-4935

RESOURCES

- [Workshop Reports on Deliberating Performance Targets for Air Quality Sensors](#)
- [Air Sensors Toolbox](#)
- [Videos on Air Sensor Measurements, Data Quality, and Interpretation](#)
- [Scan and Screen Network and Technology Clearinghouse](#) (EECIP registration required)
- [Interoperable Watersheds Network](#) (a related and completed pilot project)
- [Advanced Monitoring Technology Opportunities and Challenges](#)

Challenges

Advanced environmental monitoring technologies are becoming increasingly popular, and understanding their capabilities and appropriate use is a high priority for agencies across the country. Rapid changes in emerging technologies have the potential to significantly improve environmental protection by providing governments, industry, and the public with more localized, real-time information on environmental conditions. At the same time, as advanced technologies are employed by an array of stakeholders, uncertainties exist about the quality and use of these devices and the interpretation of the data they generate.

Benefits

The Advanced Monitoring Strategy and Implementation Team increased understanding of the performance of advanced monitoring technologies, built knowledge of appropriate use of various sensors in different applications, helped interpret data generated through advanced monitoring technologies, supported advanced monitoring technology development toward data that are of known quality, and helped establish best practices for the use of sensors and their data.

Accomplishments

- In 2018 and 2019, the Advanced Monitoring team conducted two stakeholder workshops to solicit views from various stakeholders. This included gathering state, tribal, and local government expert opinions on non-regulatory performance targets for air sensors to inform future work. Drawing from the conversations, the Advanced Monitoring team worked to develop non-regulatory performance targets for air sensors. Performance targets have been developed for PM2.5 and ozone. This information is posted on the [Air Sensors Toolbox](#).
- A series of [short educational videos](#) was launched to give the public information about air quality sensors, including how air quality health risks are communicated and how to interpret and use the sensor data collected during monitoring.
- A [Scan and Screen Network and Technology Clearinghouse](#) was developed in collaboration with the EPA Office of Enforcement and Compliance Assurance and is available on the E-Enterprise Community Inventory Platform. The Clearinghouse includes information on low-cost air and water sensors and monitors in use at various agencies and is maintained by the Environmental Council of the States.
- The [Air Sensors Toolbox](#) serves as a one-stop-shop providing resources for conducting air monitoring projects, including the latest science on the performance and use of air sensor monitoring systems for technology developers, air quality managers, citizen scientists, and the public.

What's Next?

This team has concluded work. See Resources for more information. Additional reports on current state-of-the-science and future focus performance targets are under development for NO₂, SO₂, PM₁₀, and CO used in ambient, outdoor, fixed-site environments.