Cheap Air Quality Sensors: Getting Ready for Air Quality Data 2.0

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Where we've been…

- Agencies have access to a limited amount of high-cost, high-quality air monitoring data
- Agency programs, policies, and decisions established when and how air quality data would be used
- Agency staff were recognized as experts in air monitoring, and collected air quality data or approved contractors who did
- Agency criteria determined acceptable data quality
- Agency experts interpreted air quality data and delineated conclusions from the data
- Agency rules (or law) proscribed actions and consequences resulting from air quality data
- Agencies coordinated on data handling & decisions before releasing to the public
- Agency program priorities and available funding set a predictable scope for air quality monitoring programs

Surprise!

- Rapid development in monitoring technology
- New technology has the potential to:
  - Expand availability of data
  - Affect data quality
  - Disrupt information control and flow
  - Impact Agency reputation and relationships
  - Cause unintended or unexpected consequences within rules and programs
  - Strain resources

How we engage with the new technology and those who are interested in it will determine how it impacts our programs

Where we DON'T want to be…

"Fifty dollar sensor finds air pollution Agency didn't know about!"

"Air Director fails community… …children sick and dying!"

"Federal, state, and local regulators point fingers, blame each other…"

Where we DO want to be…

- **Agencies have broad access to a large quantity of air monitoring data at lower cost, and the computational tools to make the data useful**
- Agency programs, policies, and decisions establish when and how air quality data will be used
- Agency staff are recognized as experts in air monitoring, collect **core** air quality data, **and work collaboratively with a range of "data collectors"**
- Agency criteria determine acceptable data quality **and agency staff review and accept (or not) data submitted**
- Agency experts interpret air quality data and delineate conclusions that may be drawn from the data
- Agency rules (or law) proscribe actions and consequences approved air quality data
- Agencies coordinate on **responses to requests,** data handling & decisions before **responding** to the public
- Agency program priorities and available funding set a predictable scope for air quality monitoring programs

…So now what?

How do we know when data are "good"?

How will EPA interact with States, Locals and third parties when requests come in?

What other tools do we need?

What will the data be used for?

Is there a way for us to influence the use of new technologies?

Who gets to decide?

Who pays for it?

Getting ready – some options…

- Embrace new technology
  - Identify goals and objectives for new technology
  - Find ways to be the gateway to it & its use (pilot programs, community capacity building, grants, etc.)
- Coordinate approaches
  - Criteria for evaluating devices & data
  - Common expectations for response to requests
  - Messaging, outreach, inter-agency communication
- Program review
  - Identify programs, rules, etc. that intersect with air monitoring data (NAAQS monitor siting? data quality criteria? area designations? SO_2? PSD?)
  - Troubleshoot impacts of data from new technologies
- Assess resource implications and identify options to address them

Last thoughts…

- This is not just a technical "air monitoring" issue
- There are early steps we need to take, and we need to start now
  - Monitoring Steering Committee & EPA work on criteria for evaluating technologies and data sets
  - Workgroup on common messaging & communication
  - Workgroup on agreements & protocols for responding to requests
- We also need a sustained effort as the technologies develop and come to the market place
  - Workgroup(s) on how third party data will be considered under various regulations; funding
  - Strategies to use third party data to support community-based air quality improvement and environmental justice
- We need to be prepared to change what we do, based on what we learn