Current and Future Challenges in Air Monitoring
(from the Eastern State's perspective)

Peter Babich

CTDEP

2006 National Air Monitoring Conference

November 9, 2006

Running air monitoring network ≈ Juggling act

- Challenges we face now and into the future:
  - Funding
  - NCore, New Regulations
  - Trace/Precursor-Gases
  - PMcoarse, PMcoarse speciation, Continuous PM2.5 Equivalency, (Continuous) PM Speciation, Organic Carbon Measurements, New PM2.5 NAAQS
  - PAMS, Toxics, Hg/MTN, Acrolein, Chrome VI, NATTS, Toxic grants (Rounds 1, 2 and 3)
  - Digital Data Acquisition and Management, Data Analysis
  - QA requirements/TTP audits
  - Homeland Security
  - Public participation - is there an effective way to do this?

Funding, Funding, Funding

- FY07 Budget is the big Question
  - If cuts are big, *"we will need to react very fast in terms of cutting sites – e.g., a triage style of network redesign instead of a more sane and gentler process."*
- Change requires capital expenditures
  - NCore, aging PAMS, PMcoarse/PMcoarse speciation, etc., etc.
- Divesting in some areas, but seems like we will need to invest in many more
  - Zero-sum National Monitoring Strategy concept? No Way
- "What's our role now that most criteria pollutants are in compliance?"
  - Methods Development -- *"This seems to becoming a state and local responsibility? More and more common to put out methods before they are really tested."* Time & resources associated with these efforts.

Lots of data – how to handle it?

- Data Acquisition and Management
  - *"Data acquisition/sharing/integration, etc - we haven't even tapped the surface of this yet."*
  - Need to develop systems that can handle the high volumes of data we generate
  - *"There is still a lot of 'manual' handling of data before it gets uploaded to AQS"*
  - Instruments are "smarter" while data loggers have not kept pace
  - New instruments mean new ways to communicate (i.e. new drivers/protocols); requires platform to be flexible enough and vendors (and us) to keep current
  - NCore sites require appropriate data systems that can handle the various complex data streams
  - Have to deal with/overcome your IT group
  - Overcome limited resources (time & money)
  - No off-the-shelf product currently available
  - **Automation, automation, automation. . .**

Lots of data – how to analyze it?

- Networks produce high-quality data
  - As a whole, the data produced in our air monitoring networks are of extremely high-quality b/c of criteria set for in our QAPPs.
  - Compared to efforts in maintaining and operating network, as well as QAing and validating data, there's a disproportionate amount of effort and resources that go into data analysis (e.g. PAMS)
  - *"Does not appear that much analysis of monitoring data is being done, or if it is, the results are not widely disseminated"*

- We need to do a better job pushing data analysis
  - Instrument performance, network assessment and planning, support/drive intra-agency planning efforts, assess state, regional and national programs
  - *". . . methods that correlate well with adverse human health effects and environmental degradation. We also need a strategy and methods that help us identify the source of pollution. Practically, we need air monitoring data that helps air quality planners and decision makers make hard choices about who to regulate, etc."*

Training

- Personnel
  - Instrumentation and data systems are more complex and require different skills.
  - *"Many of my field staff would require extensive retraining just to use a computer to interface with analyzers. Trace measurements, toxics, mercury, etc. are not "black box" technologies."*
  - *"With new technologies and new staff, how are we going to keep staff up to date, especially new staff?"*
- Training should be initiated/promoted/supported at all levels
  - National – certainly nothing beats hands on training, but web-based training may be able to reach more people for less $$
  - Regional – with difficulty that States have with traveling, more localized training/workshops organized by regional orgs (e.g. NESCAUM, MARAMA, etc.) seem to make sense.
  - Intra-agency/department – management needs to support the concept of training and allocate more funds for staff to travel. Internal training programs should be developed especially for new staff.

Communication and Flow of Information

- Intra-agency
  - Monitoring ⇔ Data ⇔ Planning
  - Agency IT groups
  - Upper Management
- Inter-agency
  - Regional organizations (e.g. NESCAUM, MARAMA); semiannual/annual meetings
  - Ad hoc subcommittees/workgroups
- National level
  - EPA ⇔ Regions ⇔ States
  - EPA ⇔ Monitoring Steering Committee ⇔ States ⇔ Vendors
    - 2006 NAMC
    - EPA/NACAA MSC (bi-)monthly calls
    - Subcommittees (e.g. Hg Monitoring subcommittee)
    - EPA organized calls/subcommittees (e.g. Continuous PM, precursor-gas)
    - Training, training, training. . .