Promoting Collaboration in the PM Research Program

EPA PM Centers Kick-off Meeting

November 30, 2005

RTP, NC

ORD Research Provides the Foundation for EPA's Decision-Making

PM research has significant regulatory benefits & impacts.

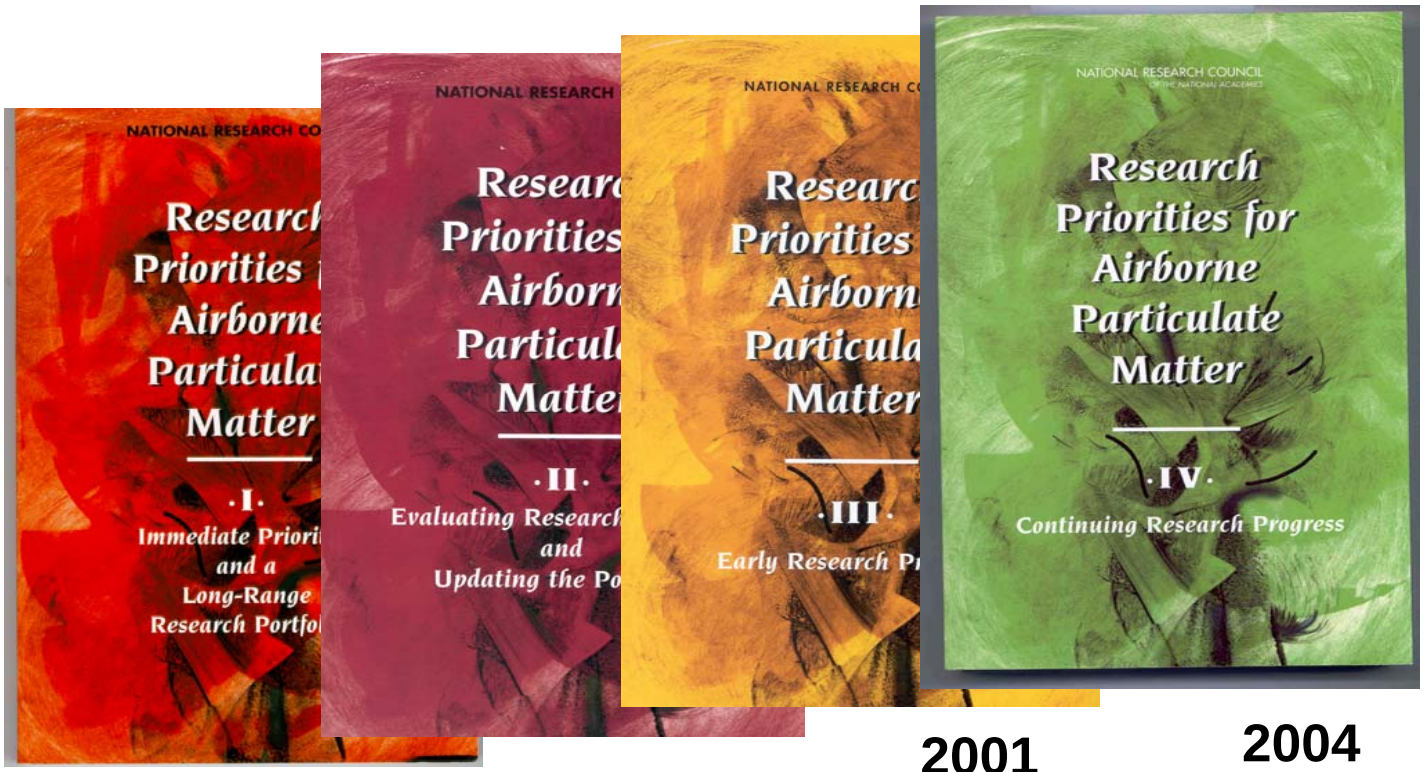
- PM NAAQS - protect public health
  - OMB – account for ~80% of all benefits attributable to regulation
  - OMB - $120 to $183 billion annual savings for years - 1992 to 2002 (emergency room visits / hospitalizations, lost workdays, premature deaths)

- ORD science reduces uncertainty and strengthens confidence in the NAAQS
- ORD science provides the models and tools needed to implement the NAAQS

National Research Endeavor

Research Priorities for Airborne Particulate Matter:

NRC subcommittee convened from late 1997 – 2004 to assess the state-of-knowledge, recommend a multi-year research portfolio, and follow progress of PM research.



1998 1999 2001 2004

NRC Research Priorities for PM

1. Outdoor Measures vs. Personal Exposure

2. Exposure of Susceptible Populations to PM Components

3. Characterization of Sources

4. Air Quality Model Development & Testing

5. Assessment of Hazardous PM Components

6. Dosimetry & Fate of Deposited PM

7. Combined Effects of PM and Gaseous Pollutants

8. Susceptible Subpopulations

9. Mechanisms of Injury

10. Analysis & Measurements

PM Research Needed to Minimize Health Risks

11. Technical Support– Atmospheric Measurements and Methods

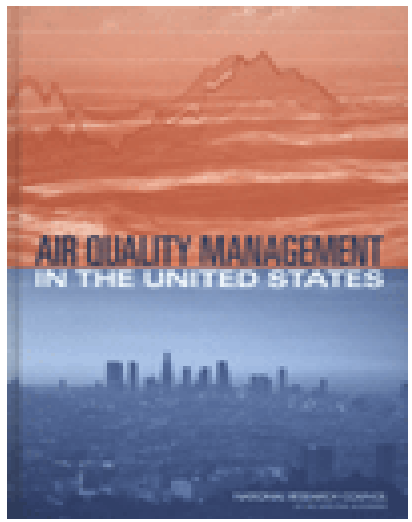
12. Source to Health Outcome

Related Recommendations to Enhance Air Quality Management

NRC Report Addresses CAAAC AQM Recommendations

1. Strengthen Scientific and Technical Capacity
2. Expand National and Multistate Control Strategies
3. Transform the SIP Process
4. Develop Integrated Program for Criteria and Hazardous Air Pollutants
5. Enhance Protection of Ecosystems and Public Welfare

2004



EPA PM Research Program

Epidemiology

Clinical and Animal Toxicology Studies

Molecular

Intramural Program

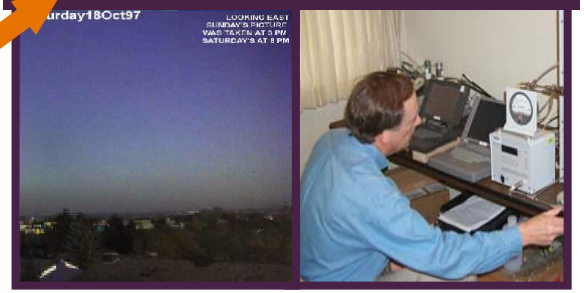
EPA STAR Program (PM Centers)

EPA Partners:

- *Other Federal Agencies*
- *Health Effects Institute*
- *National Research Council*
- *Academia*
- *Industry laboratories*

Emission Source Characterization

Exposure, Atmospheric Measurement and Models



Supersites and EPA Monitoring Network

History of the PM Centers

1998: EPA established five university-based PM Research Centers

2004: EPA recompeted the five PM Centers for advanced research

How is the Role of PM Centers Viewed in EPA's Research Program

- Bring 'into' ORD, renown and unique expertise that compliments that in house
- Bring added flexibility to ORD to meet changing Program challenges / issues
- Bring in extramural scientists with unique perspectives but common goals for research & public health
- Develop partnerships in ORD research efforts – {Program > ∑ parts}

GOALS OF THIS MEETING

Focus on Integration / Interaction

- Share information about programs and projects such that EPA and PM Center researchers can:
  - Become familiar with all planned research
  - Find areas of complimentary interest
  - Identify interactions that would strengthen each Center and the PM Program as a whole
  - Develop a common understanding among Center program staff of how their research activities fit in the context of EPA's overall PM Program.

GOALS OF THE MEETING

Focus on Integration / Interaction

- Develop a climate that encourages the Centers and EPA to:
  - Communicate throughout the year
  - Coordinate to enhance comparability of results
  - Facilitate atmospheric science / engineering / exposure / health disciplines to communicate and share perspectives
  - Explore collaborations and coordinate to the extent possible to maximize the impact of findings

What is Meant by Integration / Interaction?

- Consider the range of opportunities:
  - Sharing information
  - Seeking / lending expertise to one another
  - Enhancing comparability of results through sharing data, protocols, samples, equipment, etc
  - Designing workshops or symposia
  - Designing new projects collaboratively

- Need to meet administrative requirements
  - Grant rules restrict some interactions with EPA
  - Case-by-case review

EPA's PM Research Program

- Guided by a multi-year plan (MYP) – currently under re-development
- Scope – being broadened beyond PM
- LTGs – limited to two overarching themes
- Role of PM Centers – critical to the overall Program (independent and novel perspectives; broad expertise)

Focus on Long Term Goals

Long-term Goal 1

- Progress toward reducing uncertainty in standard setting and air quality management decisions due to advances in understanding in the air pollution sciences.
    - Inform regulatory decision-making (e.g., NAAQS)
    - Support implementation of regulations with tools, models, and information (OAR, regions, states etc.)

→ Currently focused on PM and ozone but eventually will support Air Toxics rules

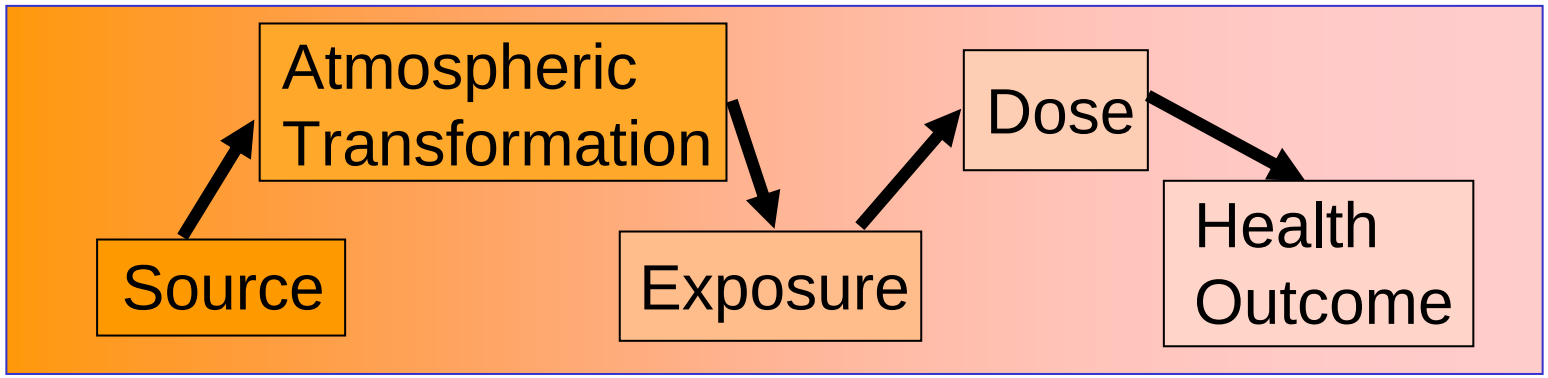
Focus on Long Term Goals

Long-term Goal 2

- Progress in assessing source to health linkages and reducing uncertainties that obscure these linkages.
    - Integrate across science and Program objectives
    - Apply multi-disciplined approaches
    - Use various source profiles of constitutive contaminants to assess those most hazardous
    - Leverage with federal and other organizations
    - Develop advanced and novel approaches to assess source – exposure – health linkages
    - Demonstrate effectiveness of the science and its dependent policy decisions

Integrated Sources to Health Outcomes

Source to Health Outcome approach recognizes health outcomes are linked to sources via interconnected biological, chemical, and physical behaviors



- Greater degree of integration across disciplines
- Improved understanding of entire problem
- Efficient & effective regulation / control strategies

OMB Performance Assessment Rating Tool (PART)

- Evaluates program effectiveness in four areas: Purpose / Design, Strategic Planning, Program Management, and Program Results
- Programs receive numerical score and rating (Effective, Moderately Effective, Adequate, Results Not Demonstrated, Ineffective)
- Outcome-oriented research
- R&D specific questions in PART reflect :

  Relevance - Quality - Performance

Some Parting Thoughts on Working Together to Achieve Outcomes

- One goal of the STAR program is to develop scientific knowledge and tools that are useful to program offices and decision makers
- Demonstrate that we have achieved results is critical for survival of the program
- Quantify progress toward ‘outcome’…
- Communicate information = key to success

What You (as Ctr. Folks) Can Do

- Keep NCER informed about:
  - Research results – ‘hot’ findings
  - Release of publications
  - Special issue journals
  - Workshops and meetings
  - Press coverage of results
  - Communication with people interested in using your results or decision makers

What We Can Do

- Identify EPA scientists and program offices interested in your work
- Facilitate communication of your results
  - Workshops
  - NCER web site
  - Share your success stories with users of scientific information
- Identify scientific results and tools that may be helpful for decision makers

Today's Agenda

- Presentations from Centers
- Overview of EPA's PM Research
- PM Science/Policy Futures
- Breakout Sessions
  - Susceptible populations
  - Panel and Controlled Exposure Studies
  - Application of "OMICS" Technology to Tox Studies
  - Mechanisms/Oxidative Stress
  - Chronic Effects
  - Source and Source-Oriented Sampling
  - Source Apportionment
- Report from Breakout

Tomorrow's Agenda

- National Monitoring Strategy
- Air Quality Data Base for Health Effects Studies
- Breakout Sessions
- Report From Breakouts
- Directions to Collaborative Groups
- Small Group Discussions on Collaboration
- Meeting Highlights and Next Steps