Annual PM Center Meeting Agendas

The following pages contain the agendas for the annual meetings of the PM Centers from 2000 to 2007. The annual meetings are hosted by a different Center each year on a rotating basis and are attended by Center Directors, Center researchers, and members of EPA. The purpose of these meetings is to increase interaction between researchers at different Centers and allow for large group discussions of important issues that cut across Centers. Special topics in recent years have included methods of PM collection and source characterization as well as examining the biologically important time windows of exposure to PM for statistical analysis. The agenda for each meeting is planned by a committee made up of representatives from each Center led by the hosting Center.

PM Center Directors Meeting
Day 1 - July 20, 2000
Opening Remarks and Scientific Presentations

Welcome and Intro — Jane Koenig and Dave Kalman
Opening Remarks — Peter Preuss

Peter Preuss and Jack Puzak were in Seattle meeting with other Centers as well. EPA has considerable hopes for Centers in general:

1. The group of centers should be greater than the sum of its parts. Interaction between centers is needed to demonstrate why they were created instead of funding individual grants.
2. Centers should connect up and "interdigitate"; make sure centers are not individually going down the same paths unknowingly.
3. EPA expects interaction of investigators within each center - regular communications, meetings, etc.
4. EPA has high expectations of center interactions, including websites subcommittees, working groups. The EPA's liaison committee's function is to work with the centers on communications.
5. There should be communications outside of the Centers as well. Transmission of information to EPA nonscientists in understandable format.

Introduction of Joe Mauderly as a third party facilitator of discussions.

EPA Updates — John Vandenberg and Mary Ross

- There is an overarching federal strategic plan that involves EPA, NIH, DOE, DOT, etc in looking at issues beyond human health including cost benefit and ecosystems
- The EPA liaison committee met the previous week to discuss this Directors meeting. Centers should use the committee to ask questions of the EPA (non grant-related questions).
- PM Centers represent a significant opportunity to make a difference. EPA will support interactions. A lot of federal agencies think this research is unusually significant.
- The EPA website is in development.
- There have been early discussions of the next generation national PM scientific meeting, tentatively scheduled for early 2003. AAAR is making proposals.
- NAAQS review to be completed by July 2002. The criteria document for the next review will be due in 2005, and the next review deadline is 2007. Results from current PM Center activity will clearly inform the 2007 review.

U. Washington Update	Jane Koenig, Sally Liu and Joel Kaufman
NRCSE (UW) Update	Peter Guttorp
UCLA/USC Update	John Froines
Harvard Update	Petros Koutrakis
Rochester Update	Guenter Oberdoerster, Kim Prather
NYU Update	Morton Lippmann, Lung Chi Chen

Summary of Updates - Joe Mauderly

One view of each PM Center's presentation and activities is that each Center represents a resource of expertise and technical assets. This might contribute to the overall PM-related agenda through collaborative application of their resources ("What do they have?"), and through the findings each Center produces on its own ("What answers might they provide?"). To recap what was presented from this point of view:

UW - What Do They Have?
- Woodsmoke-dominated fine PM
- Panels of elderly and personal exposure data
- Blood, urine and PM samples
- Instrumented mice

Questions they might answer
- Generalizability of hazards and potency across combustion sources
- Contribution of outdoor sources to total PM exposure and effects

UCLA/UCS - What Do They Have?
- Mobile source-dominated fine PM
- Mobile concentrator/analytical exposure lab
- Children's study groups
- Atmospheric reaction product "lab"

Questions they might answer
- Effects of PM versus copollutants
- PM composition versus effect at same concentration

Harvard - What Do They Have?
- Math model of outdoor ⇒ indoor incursion
- Big epidemiological databases
- Sophisticated lab model for cardiac effects

Questions they might answer
- Contribution of outdoor particles to total exposure
- Magnitude of effect, threshold, and level protective of sensitive population
- Existence and mechanism of lung-heart

Rochester - What Do They Have?
- Juxtaposition of epi, clinical and toxicology tools
- Well-defined focus on ultrafines
- Ability to trace solid UF in animals
- Single-particle analysis

Questions they might answer
- Importance of ultrafines
- Influence of UF composition

NYU - What Do They Have?
- Noninvasive production of physical airway replicas
- Asthma panel
- Animal exposure capability
- Mobile lab

Questions they might answer
- Contributions of dosimetry to susceptibility
- Toxic components
- Local versus central PM concentrations (point source)

Overall Questions

6. "So what?" if you get a response to concentrated PM? Also need to understand how concentrator exposures apply to environmental exposures.
7. Isn't variability in exposure as important as <u>average</u> level?
8. Is anyone testing/challenging the hypothesis that $PM_{2.5}$ is an appropriate size cut? (Do you care?)
9. Is anyone working on the importance of short-term spikes? (Do you care?)
10. Are these PM centers, or just $PM_{2.5}$ centers?

Points from general discussion

- Format of annual PM meetings: next year, avoid the "show and tell" format and have a more issue-oriented structure. Consider a program committee and inter-Center planning and preparation

Day 2 - July 21, 2000
PM Centers' Discussion and Planning

Topics from prior day's discussions:

- QMP discussion; Harvard will send a model of a QMP plan to the other four Centers
- What is the overall goal of each Center?
- What are the questions to be asked?
- Do any Centers want to change direction?
- Do we (still) want working groups?
- What working groups?
- Rosters/leaders for each
- Issues/needs for each
- Agenda/goals for next year
- Facilitating cross-Center communications
- Joint activities
  - Follow-up on Joe's inventory approach
  - Next meeting

  Include:

  Major scientific breakthroughs
  Important issues
  Working group reports
  Critical path

Common kinds of technical activities

- Minimize unnecessary variables
- Workshops
- Topics rather than working groups - non-exclusive. Some suggestions:
  - Concentrator protocols
  - Harmonization? Communication re measurement
  - Cardiovascular endpoints/protocols
  - Exposure monitoring/chemical analysis
  - Data sharing
  - Panel study design
  - Biomarkers
  - Source/receptor relationship (metrics)
  - Organic composition of PM
  - Sensitive models
  - Value of info

How to proceed?

- Workshops
- Long distance discussion
  - Report at annual meeting
- Leverage off of existing activities/workshops
  - Supersites

Future meetings: who will host?

- 2001 - Harvard
- 2002 - UCLA/USC
- 2003 - Rochester

Planning committee for 2001 meeting: Harvard lead

Doug Dockery
Mark Utell
Constantinos Sioutas
Richard Schlesinger
Jane Koenig
John Vandenberg

Wrap-up by Joe Mauderly

There is a perceived tension between good science and EPA agenda

EPA PM CENTERS MEETING

JULY 9-10, 2001

DOUBLETREE HOTEL, BOSTON, MA

JULY 9, MONDAY

8:30 – 9:00 Introduction – EPA

"2003 is Around the Corner: Evaluating the Success of the PM Centers Program" (Peter Preuss)

9:00 – 10:00 Examples of Inter-Center Collaborations

9:00 Workshop on Cardiovascular Endpoints (***Rochester PM Center***)

9:30 Value of Information in Setting Research Priorities ***(Harvard PM Center)***

10:00 – 10:30 Break

10:30 – 12:00 PM Exposure Assessment (Dockery, Chair)

10:30 Exposure Assessment for Health Effects Studies ***(Lippmann, NYU PM Center)***

11:00 Mini-presentations by Centers *(10 minutes each)*

- *11:00 EPA (Sheldon)*
- *11:10 Harvard (Suh)*
- *11:20 Southern California (Peters)*

11:30 General Discussion/Opportunities for Collaboration

12:00 – 2:00 Lunch

PM Center Directors meet over lunch at Hotel

Others: Free Time in Harvard Square

2:00 – 3:30 Sources of PM *(Utell, Chair)*

2:00 PM Sources in Pacific Northwest ***(Seattle PM Center)***

2:30 Mini-presentations by Centers *(10 minutes each)*

- *2:30 New York University (Michaela Kendall)*
- *2:40 Southern California (Characteristics of PM as a Function of Distance from Freeways; Sioutas)*
- *2:50 Rochester (Glenn Cass?)*

3:00 General Discussion/Opportunities for Collaboration

3:00 – 3:30 Break

3:30 – 5:00 Health Effects by Particle Size *(Sioutas, Chair)*

3:30 The Ultrafine Hypothesis: Where are we now? ***(Rochester PM Center)***

4:00 Mini-presentations by Centers *(10 minutes each)*

- *4:00 EPA (Robert Devlin),*
- *4:10 Harvard (Size-specific Particle sampling Technologies, Petros Koutrakis),*
- *4:20 Southern California (Ultrafine PM Characteristics in LA; Costas Sioutas)*
- *4:30 New York University (Particle size and cardiovascular responses, Lung Chi Chen)*

4:40 General Discussion/Opportunities for Collaboration

5:30 Depart for dinner by bus

6:00 – 9:00 Clambake at Petros Koutrakis' house

JULY 10, TUESDAY

8:30 – 10:30 Effects of PM from Specific Sources *(Koenig, Chair)*

8:30 PM from Mobile Sources ***(Southern California PM Center, Andre Nel)***

9:00 El Paso Study – Preliminary Work ***(EPA)***

9:10 Health Effects of Source Specific Particles ***(Harvard PM Center)***

9:40 Mini-presentations by Centers *(10 minutes each)*

- *9:40 New York University*
- *9:50 EPA (Costa)*

10:00 General Discussion/Opportunities for Collaboration

10:30 – 11:00 Break

11:00 – 12:45 Mechanisms of PM Health Effects *(Schlesinger, Chair)*

11:00 Cardiovascular Effects in the Elderly Panel Studies ***(EPA Laboratories)***

11:30 Mini-presentations by Centers *(10 minutes each)*

- *11:30 North West*
- *11:40 Harvard (Susceptible Populations, Joel Schwartz),*
- *11:50 New York (Cardiopulmonary effects of PM in compromised animal models, Christine Nadziejko)*
- *12:00 Southern California (John Froines)*

12:10 General Discussion/Opportunities for Collaboration

12:45 – 2:15 Lunch at Hotel

PM Center Directors meet separately

Informal break-outs of interest groups

2:15 – 2:45 Closure/Commitments on Coordination, Next Steps, et *(Devlin, Chair)*

2:45 Optionl Tour of HSPH Supersite and animal facilities

Agenda - PM Center Director's Meeting
July 8-9, 2002
Los Angeles, CA

Monday, July 8

7:30 – 8:30 AM	Breakfast
8:30 – 9:00 AM	Status report from EPA –Peter Preuss
9:00 AM – Noon	Presentations each of the "6 Centers" – 5 PM and EPA (Dan Costa). Presentations should focus on prime accomplishments of the Center and collaborative efforts and be approximately 20 minutes long.
Noon – 1:30 PM	**LUNCH**
1:30 – 2:00 PM	Presentation by John Bachmann - overview on implementation of the PM standards
2:00 – 3:00 PM	Monitoring Session (Supersite/Speciation Site/National Networks) - Paul Solomon to give an overview from EPA's perspective on the possible integration of Supersites and Speciation sites with PM Center research and the redesign of the National networks. Costas will use about 10 minutes of this time to illustrate the work being done in LA as an example of possible integration.
3:00 – 3:15 PM	Coffee Break and movement into Breakout Sessions
3:15 – 5:30 PM	Breakout sessions - each breakout session should answer the following questions (special emphasis should be placed on the last 3 items): 1. How well does the report represent that science that is being conducted by the Centers? 2. What is new since the report was drafted? 3. Opportunities for collaboration 4. New directions 5. Incorporation of Supersites/Speciation Sites **Groups and Chairs:** **Chronic** – Lippmann, Peters, Dockery, Lucas Neas (EPA) **Exposure** (including Dosimetry) – Koutrakis, Cohen, Phalen, Ron Williams (EPA) **Mechanisms** – Frampton, Godleski, Nel, Bob Devlin (EPA) **Acute** – Koenig, Gong, Schwartz, John Creason (EPA)

Tuesday, July 9

7:30 – 8:30 AM	Breakfast

8:30 – 10:30 AM	Summary Presentations from Breakout sessions – 30 minutes per group (15 for presentation, 15 for discussion).
10:30 – 12:30 PM	Group Discussion Mark Utell and Costas Sioutas to moderate the session.
	[Coffee break at 10:30 AM]
12:30 PM	**Adjourn**

PM CENTER DIRECTORS' MEETING
ROCHESTER –July 13-15, 2003
Crowne Plaza Hotel

Day 1 (Sunday, July 13) Reception (7th floor Executive Lounge, Crowne Plaza Hotel, 6:00 p.m.)

Day 2 (Monday, July 14)* All meetings in Ballroom #1 unless otherwise indicated

8:30 a.m. Introduction and presentation of Theme/Hypothesis *(G. Oberdörster)*

8:40 a.m. EPA status report: *Christopher Zarba, Acting Deputy Director*
National Center for Environmental Research

9:00 a.m. Session I: *Mark J. Utell, Chair*
Individual Center Updates, including EPA
(Focus on work relevant to hypothesis)
9:00 a.m.: Seattle Center
9:30 a.m.: So. California Center
10:00 a.m.: Rochester Center
10:30 a.m.: Harvard Center
11:00 a.m.: NYU Center
11:30 a.m.:. EPA

12:00 N Lunch

1:30 p.m. Session II: *Mark Frampton, Chair*

Plenary Presentation: "*Science to Inform Decisions*"
Dan Greenbaum, President, Health Effects Institute

Workshop: Experimental Systems and Models in PM Research:
Designing a Multi-Center Study to test the Hypothesis

2:15 p.m. Working Group Sessions

1. Susceptibility models (Aurora Room)
2. Source apportionment & exposure assessment models (Geneva Room)

3:45 p.m. Break

4:00-5:30 p.m. Working Group Sessions

3. Exposure models (Aurora Room)
4. Statistical and data analytical models (Geneva Room)

6:30 p.m. Meet in hotel lobby for transportation to Richardson's Canal House Inn

Day 3 (Tuesday, July 15)*:

8:30 a.m. Summaries of working group sessions, *Andy Miller, Chair*
10:30 a.m. Break
10:45 a.m. Panel Discussion --*Chair: Mark Frampton*
Explore Integration of research among Centers
12:00 N *Adjourn*

**Continental breakfast will be available at 8:00 a.m., outside Ballroom #1*

Meeting the Challenges of Particulate Air Pollution:
EPA's Particulate Matter (PM) Research Centers

Hotel Washington
515 15th Street NW
Washington, DC

September 27, 2004

AGENDA

8:00 - 8:45 a.m.	**Registration**
8:45 - 9:00 a.m.	**Welcome** *William Farland, Acting Deputy Assistant Administrator for Science, EPA Office of Research and Development*
9:00 - 9:30 a.m.	**Opening Address** *Paul Gilman, Assistant Administrator, EPA Office of Research and Development*
9:30 - 10:30 a.m.	**Topic 1: Addressing Uncertainties in the PM Epidemiologic Studies** ➢ **Presentation and Discussion** *Joel Schwartz, Harvard University; Sally Liu, University of Washington*
10:30 - 11:30 a.m.	**Topic 2: Biological Explanations for How PM Is Causing Premature Mortality and Who Is Most Susceptible to PM Effects** ➢ **Presentation and Discussion** *Mark Utell, University of Rochester; Robert Devlin, EPA National Health and Environmental Effects Research Laboratory*
11:30 a.m. - 1:00 p.m.	**Lunch** (on your own)
1:00 - 1:30 p.m.	**Keynote Speaker: Providing Regulatory Context** *Jeffrey Holmstead, Assistant Administrator, EPA Office of Air and Radiation*
1:30 - 2:30 p.m.	**Topic 3: Ambient Particles, Their Toxic Components and Sources, and How They Impact Health** ➢ **Presentation and Discussion** *John Froines, University of California–Los Angeles; Morton Lippmann, New York University*
2:30 - 2:45 p.m.	**Break**
2:45 - 4:15 p.m.	**Panel Discussion on PM Research Challenges Ahead** *John Bachmann, EPA Office of Air and Radiation (moderator); Philip Hopke, Clarkson University; Petros Koutrakis, Harvard University; Jonathan Samet, Johns Hopkins University; Mark Utell, University of Rochester; Carol Henry, American Chemistry Council; Tad Aburn, Maryland Department of the Environment; and Michael Lipsett, California Department of Health Services*
4:15 - 5:00 p.m.	**PM Research: What We Know and Where We're Headed** *Daniel S. Greenbaum, President, Health Effects Institute*
5:00 - 5:15 p.m.	**Concluding Remarks** *William Farland, Acting Deputy Assistant Administrator for Science, EPA Office of Research and Development*
5:15 - 6:00 p.m.	**Break**
6:00 p.m.	**Recognition of PM Research Partnerships** (B369 Rayburn House Office Building) *Reception following, independently sponsored by the Health Effects Institute*

Particulate Matter Research Centers Meeting

Hotel Washington
515 15th Street, NW
Washington, DC

September 28, 2004

AGENDA

Day 2: PM Centers and EPA Present and Discuss Recent Research Results

8:00 – 9:00 a.m. **PM Center Directors Breakfast—Planning for Final Integrated Report**

9:00 – 9:05 a.m. **Welcome**

9:05 – 10:45 a.m. **Theme: Particle Toxicity and Mechanisms**
What characteristics of particles produce toxicity—size, composition, interactive effects, nature of the matrix, primary vs. secondary? What is the relationship between mode of formation and toxicity? Can we reach some preliminary conclusions about mechanisms?
(Centers each provide 20 minute presentations addressing some aspects of these questions. Each followed by a 10 minute discussion.)

- **9:05 – 9:25 a.m.** **Three Tiers of Oxidative Stress in Response to Particulate Air Pollution**
  Andre Nel, Southern California Particle Center and Supersite
- **9:35 – 9:55 a.m.** **Particle Toxicity and Pollutant Gas/Particle Interactions in a Rat Model of Myocardial Infarction**
  John Godleski, Harvard University
- **10:05 – 10:25 a.m.** **In Search of Mechanisms for Ultrafine/Fine PM Induced Cardiovascular Effects**
  Günter Oberdörster, University of Rochester
- **10:35 – 10:45 a.m.** **General Discussion of Above Theme**

10:45 – 11:00 a.m. **Break**

11:00 a.m. – 12:20 p.m. **New Research From Other Centers**

- **11:00 – 11:20 a.m.** **Detroit Exposure Aerosol Research Study**
  Linda Sheldon, U.S. EPA
- **11:30 – 11:50 a.m.** **Exhaled Nitric Oxide in Children With Asthma**
  Jane Koenig, University of Washington
- **12:00 – 12:20 p.m.** **Subchronic CAPs Exposures in Mice: Biological Endpoints and Exposure Assessment**
  Lung Chi Chen, New York University

12:30 – 12:50 p.m. **Wrap-Up and Closing Remarks—EPA**

12:50 p.m. **Adjourn**

1:00 – 3:00 p.m. **Center Directors Lunch With Jack Puzak**
Report on Plans for Integrated Report. General Comments and Discussion of PM Centers Program.

PM Centers Kick-Off Meeting

U.S. Environmental Protection Agency
Main Campus, Building C
Auditorium A & B
Research Triangle Park, NC

November 30 – December 1, 2005

Agenda

Day 1 – Wednesday, November 30

8:00 a.m. – 8:45 a.m.	Breakfast and Registration
8:45 a.m. – 9:00 a.m.	Welcome Gary Foley, Director, EPA National Center for Environmental Research
9:00 a.m. – 9:30 a.m.	Goals for the Meeting: Promoting Collaboration in the PM Research Program Dan Costa, EPA National Program Director for Air Research
9:30 a.m. – 10:00 a.m.	San Joaquin Valley Aerosol Health Effects Center Overview Tony Wexler, Center Director
10:00 a.m. – 10:30 a.m.	Harvard University PM Research Center Overview Petros Koutrakis, Center Director
10:30 a.m. – 10:45 a.m.	Break
10:45 a.m. – 11:15 a.m.	Southern California Particle Center Overview John Froines, Center Director
11:15 a.m. – 11:45 a.m.	University of Rochester PM Research Center Overview Gunter Oberdorster, Center Director
11:45 a.m. – 1:15 p.m.	Lunch (PM Center Directors meet together for lunch)
1:15 p.m. – 1:45 p.m.	Johns Hopkins PM Research Center Overview Jon Samet, Center Director
1:45 p.m. – 2:15 p.m.	EPA Research Laboratories: PM Research Overview Dan Costa, EPA National Program Director for Air Research
2:15 p.m. – 2:45 p.m.	PM Science/Policy Futures: Deconstructing a Multiple Pollutant John Bachmann, Associate Director for Science/Policy and New Programs EPA Office of Air Quality Planning and Standards
2:45 p.m. – 3:00 p.m.	Break
3:00 p.m. – 4:30 p.m.	Breakout Session One — small groups meet on the following research topics: Susceptible Populations (animal and human) Discussion Leaders: Diane Gold/Harvard and Gunter Oberdorster/Rochester

Panel and Controlled Exposure Studies (design, measurements, end points, populations)
Discussion Leaders: Mark Frampton/Rochester and Ralph Delfino/SCPC

Application of "OMICS" Technology to Toxicology Studies
Discussion Leaders: Joe G.N. Garcia/Hopkins and Tony Huang/EPA

Mechanisms/Oxidative Stress
Discussion Leaders: Andre Nel/SCPC and Andy Ghio/EPA

Chronic Effects
Discussion Leaders: Doug Dockery/Harvard and Charlie Plopper/UC Davis

Source and Source-Oriented Sampling Research
Discussion Leaders: Costas Sioutas/SCPC and Michael Hays/EPA

Source Apportionment (different approaches, how to strengthen use of models with atmospheric science)
Discussion Leaders: Mike Kleeman/UC Davis and Linda Sheldon/EPA

4:30 p.m. – 5:30 p.m. Plenary: Report Back From Breakouts and Discussion

5:30 p.m. – 6:30 p.m. Reception (at EPA)

6:30 p.m. Group Dinner (at EPA)

Day 2 – Thursday, December 1

8:00 a.m. Breakfast

8:15 a.m. – 8:20 a.m. Introductions
Robert Devlin, Chief
Clinical Research Branch, National Health and Environmental Effects Research Laboratory, EPA

8:20 a.m. – 8:40 a.m. National Monitoring Strategy and Implications for Health Studies
Phil Lorang, Acting Group Leader, Ambient Air Monitoring Group
EPA Office of Air Quality Planning and Standards

8:40 a.m. – 9:00 a.m. Air Quality Data Base for Health Effects Studies
Geoffrey Sunshine, Health Effects Institute

9:00 a.m. – 10:30 a.m. Breakout Session Two: Multi-Disciplinary Components/Sources-to-Effects Research
Multi-disciplinary groups meet to discuss assigned questions (see next page)

10:30 a.m. – 10:45 a.m. Break

10:45 a.m. – 11:45 a.m. Plenary: Report Back From Breakouts and Discussion

11:45 a.m. – 1:00 p.m. Lunch

1:00 p.m. – 1:15 p.m. Plenary: Directions to Collaborative Groups
Robert Devlin, Chief
Clinical Research Branch, National Health and Environmental Effects Research Laboratory, EPA

1:15 pm. – 2:15p.m.	Small Group Discussions to Begin Collaboration Planning Meeting participants gather in small groups of their choosing to discuss specific collaborations in more concrete terms.
2:15 p.m.- 3:00 p.m.	Panel of PM Center Directors and EPA – Meeting Highlights and Next Steps
3:00 p.m.	Meeting Adjourns

Breakout Group Questions, Thursday, 9:00 a.m.

Group A — Discussion Leaders: John Godleski/Harvard and Patrick Breysse/Hopkins

What are the best approaches to identify/attribute sources (e.g., vehicular, agricultural, biomass burning, power plant, airports, shipping) and are different methods of attributing source emissions to ambient concentrations more suitable for different types of health studies?

Do different methods of attributing components to sources reveal differences in source characteristics that are of importance to health?

Group B — Discussion Leaders: Michelle Bell/Hopkins and Phil Hopke/Rochester

How does the interaction between source emissions and/or atmospheric chemistry potentially affect the toxicity of particles? For example, do acidic materials catalyze the formation of peroxides and other particle-bound ROS or does the deposition of acidic components onto the surface of the particles make other components such as metals more toxic?

Group C — Discussion Leaders: Rick Phipps/Rochester and Tony Wexler/UC Davis

Do emissions from different sources that contain the same component lead to different levels or types of health effects?

What source signatures are being used for which sources and why? Have we made any progress in attributing source signatures to toxic effects?

Group D — Discussion Leaders: Jon Samet/Hopkins and Ian Kennedy/UC Davis

What is the contribution of co-pollutants to PM observed health effects?

What are relevant co-pollutants (both gas and particulate), how can they be identified, and what is known about their interaction with PM?

How can one characterize dose-response relationships when co-pollutants are involved?

Group E — Discussion Leaders: Mark Utell/Rochester and Jamie Schauer/SCPC

Do current approaches to attributing sources to ambient concentrations adequately capture the variation in exposure to different particle sizes?

What are sizes of relevance or how can size lead to different health effects or different pathways, and is it feasible to generate laboratory surrogates that mimic sources or size ranges?

Group F — Discussion Leaders: Lucas Neas/EPA and Helen Suh/Harvard

In-vehicle and near-roadway studies: How can these studies evaluate the relative toxicity of components derived from specific sources (emissions, brakes, tires, etc.)?

PM Centers Meeting 2006

Boston Marriott Newton Hotel
2345 Commonwealth Ave.
Newton, MA

November 29-30, 2006

Detailed Agenda

Tuesday, November 28, 2006 (Statisticians only)

1:00 pm – 5:30 pm **Statisticians Meeting (invited participants only)**
Coordinator: Brent Coull

1:00 pm – 2:30 pm **Session 1: Statistical Issues in Assessing Chronic Effects of PM**
Kiros Berhane, University of Southern California
- Discussion of multi-level models, flexible techniques for modeling lung function growth trajectories and related ecologic inference, joint modeling of lung function and asthma outcomes and related ecologic inference, GxE interactions.

Chris Paciorek, Harvard University
- Spatial confounding in PM health studies

3:00 pm – 4:30 pm **Session 2**: **Biologically important time windows of exposure: Distributed lag models and other approaches**
Francesca Dominici, Roger Peng, Johns Hopkins
- Distributed lag modeling in national mortality studies

Brent Coull, Joel Schwartz, Harvard University
- Distributed lag modeling in panel studies

Wednesday, November 29, 2006 – PM Center Meeting

Note: (A) and (B) indicate concurrent sessions

8:30 am – 9:00 am **Registration – Welcome and Overview of PM Centers Meeting**

9:00 am – 10:30 am **(A) Endothelial Function Overview**
Chair: John Godleski
Guest Speaker: Michael Gimbrone, Brigham and Women's Hospital

(B) Statistical Session 3: Speciated Data and Source-Specific Health Effects
Philip Hopke, Clarkson University
- Data sources and existing methods for source apportionment

Francesca Dominici, Roger Peng, Johns Hopkins
- Speciated data and source apportionment for PM epidemiology

10:30 am - 10:45 am **Break**

10:45 am – 12:00 pm **(A) Analytical Measurement Overview – Framework and Approach for Assessing Intercomparability**
Chair: Michael Kleeman

- Overview of PM Center and EPA intercomparison efforts
- Highlight: Ongoing metals intercomparison efforts
- Framework for using intercomparison results
- Discussion and identification of follow up needs

(B) Statistical Session 4: Exposure Modeling and other Measurement Error Issues in PM Research
Chris Paciorek, Brent Coull, Joel Schwartz, Harvard University

- Exposure measurement error in spatial epidemiological studies

Kiros Berhane, USC

- Exposure modeling in the Children's Health Study

12:00 – 1:30pm **Lunch**
PM Centers Directors meet

1:30 pm – 2:30 pm **Statisticians Report & Discussion –** Brent Coull
Report out, and group discussion of other statistical needs

2:30 pm – 3:15 pm **CAPs & Panel Studies Overview –** Robert Devlin

3:15 pm - 3:30 pm **Break**

3:30 pm – 5:00 pm **(A) CAPs & Panel Studies: Statistical & Design Issues**
Chair: Robert Devlin

<u>Statistical Issues:</u>

- Comparability of statistical approaches among PM Centers, especially for CAPS studies.
- Statistical approaches used to link health effects with specific PM components, factors, or sources.

<u>Design issues:</u>

- Should CAPS studies be designed to be more like panel studies?
- Fluctuating or constant CAPS targets for each exposure.
- CAPS studies: chamber, mask, mouthpiece?
- Value of personal monitoring for panel studies.
- Exercise in CAPS studies - how relevant to real world exposures?

(B) Analytical Measurement: Physical Characterization – Current Understanding from Past Efforts
Chair: Costas Sioutas
Guest Speaker: Peter McMurry, University of Minnesota

- Results of past intercomparison studies, lessons and implications
- Short presentations from the PM Centers and EPA
- Discussion and identification of follow up needs

Thursday, November 30, 2006

8:00 am – 9:30 am

(A) Endothelial Function/Mechanisms – In-Depth Discussion
Chair: John Godleski

- Discussion of keynote presentation and implications for environmental epidemiological studies, animal studies, and in vitro studies
- Use of in vitro endothelial cell studies in particulate pollution research
  - Hypotheses
  - Particle models
  - Cell model systems
  - Outcomes
- In vivo studies of endothelial biology in people and animals: Outcomes

(B) Analytical Measurement: Implications for Source Apportionment
Chair: Phil Hopke

- Differentiating source apportionment uncertainty between different source apportionment models and different input measurements
- Incremental benefits of specific measurements above the STN
- Short presentations from the PM Centers and EPA
- Discussion and identification of follow up needs

9:30 am – 9:45 am **Break**

9:45 am – 11:15 am

(A) CAPs & Panel Studies: Source Issues, Toxicology
Chair: Robert Devlin

Source Issues:

- Comparability of PM components measurements in panel studies and CAPS studies.
- What else should be measured for linkage to sources?
- Value added if the same lab measured specific components for all CAPs and panel studies?

Toxicology:

- Comparability of end points being measured in panel and CAPS studies.
- Value added to having a common suite of end points that can be applied to all studies?
- Value added if certain groups were responsible for assaying specific end points for most/all panel or CAPS studies?
- Which susceptible populations should be studied?

(B) Analytical Measurement: EC/OC & Organics – Current Understanding from Past Efforts
Chair: Alison Geyh
Speaker: Rebecca Sheesley, UW-Madison

- Past EC/OC intercomparison efforts
- Past organic speciation intercomparison efforts
- Short presentations from the PM Centers and EPA
- Discussion and identification of follow up needs

11:15 am – 12:00 pm **10 minute report-out from each of the 3 in-depth groups & closing**

AGENDA
PM Centers Meeting 2007
Southern California Particle Center, Los Angeles, CA

Day one (Nov 27, 2007), half-day plenary
Title: Measurement of Oxidant Potential as a Tool for Assessing PM Health Effects

Organizers: André Nel, Alison Elder, Kent Pinkerton, John Froines, Mike Kleinman

8:00 am	Registration
8:15 am – 8:30am	Welcome, John Froines, SCPC Director
8:30 am – 8:45am	Opening Remarks, Dan Costa, National Program Director, Air Research, EPA
8:45 am – 9:25 am	Keynote Presentation, *Nostratola D. Vaziri*, Interplay of oxidative stress, inflammation and hypertension: relevance to environmental pollution.
9:25 am – 9:35 am	Discussion
	PM Center Presentations:
9:35 am – 10:00 am	The Use of the Hierarchical Oxidative Stress Paradigm to Understand Relationships between Adaptation, Inflammation, and Health Outcomes. *André Nel*, SCPC
10:00 am – 10:25 am	Covalent Bond Formation: An Alternative Mechanism for Adverse Health Effects of Environmental Chemicals. *Art Cho, John Froines,* SCPC
10:25 am – 10:35 am	Coffee break
10:35 am – 11:00 am	General discussion
	Focused Topical Presentations (**15 min + 10 min discussion**, each):
11:00 am – 11:25 am	Importance of time between exposure and response for assessing health effects. *Kent Pinkerton*, UC Davis
11:25 am – 11:50 am	Changes in endothelial and platelet function with inhalation of nanoparticles: effects of oxidative stress? *Mark Frampton*, University of Rochester
11:50 am – 12:15 pm	In vivo determination of oxidative stress in animals. *Beatriz Gonzalez-Flecha*, Harvard University
12:15 pm – 12:40 pm	The use of genomic analyses to understand pathways of response to compositionally diverse PM of different sizes. *Joel Schwartz,* Harvard University
12:40 pm – 1:45 pm	**Lunch**

1:45 pm – 5:15 pm **Afternoon Break out Sessions**

Break out Session 1: PM Collection and source characterization methods (organized by *Allison Geyh*, John Hopkins University; and *Bob Devlin*, EPA). The aims of this session are 1) assess what is being collected by the Centers; and 2) to develop a shared resource of PM samples and data that could be used in other studies. Other participants: *Constantinos Sioutas, Petros Koutakis, Phil Hopke*, and *Mike Kleeman*.

Break out Session 2: Statistical and design issues in assessing individual susceptibility to PM. Other potential topics: Statistical challenges inherent in the estimation of the health effects of $PM_{2.5}$ speciated data and emission sources; Exposure measurement error to $PM_{2.5}$ speciated data; Accounting for the uncertainty in the adjustment of measured and unmeasured confounders; Statistical challenges inherent in the estimation of the health effects of Coarse PM. (organized by *Dan Gillen* and *Ralph Delfino*, SCPC; *Brent Coul*, Harvard University; *Francesca Dominici*, John Hopkins University).

Reporting to the whole group from these sessions will take place on the second day.

Day two (Nov 28, 2007), half-day plenary
Title: Linkages between PM source characterization, properties, and health effects.

(Organizers: John Godleski, Phil Hopke, Bob Devlin, Costas Sioutas, Ralph Delfino)

(**20 min + 10 min discussion**, **each**):

8:30 am – 9:00 am	Linkages to Laboratory Toxicology Approaches, and then to Health Outcomes in Time Series Studies. *Pat Breysse, Skip Garcia*, University of Chicago
9:00 am – 9:30 am	Linkages to Health Outcomes in Panel Studies. *Ralph Delfino*, SCPC; *Diane Gold*, Harvard University
9:30 am – 10:00 am	Mobile Inhalation Toxicology Approaches to Study Freshly Generated Aerosols. *Mike Kleinman*, SCPC; *Alison Elder*, Rochester University
10:00 am – 10:15 am	Coffee break
10:15 am – 10:45 am	Strategies that Employ Source-specific or Source-related Aged Aerosols for Inhalation Studies. *John Godleski*, Harvard University
10:45 am – 11:45 am	General discussion
	Reporting from break out sessions
	(Concurrent with lunch)
12:00 pm – 12:20 pm	Break out Session 1
12:20 pm – 12:40 pm	Break out Session 2