Supersites PI Meeting, Las Vegas, NV, Feb. 25-26, 2004

Science Questions and Proposed Leads

Leads are to work with other PIs to develop a current synthesis of information on their topics listed below. Focus should be on new advances in these areas based on Supersites Project efforts and as appropriate related or coordinated studies. Co-leads can decide between themselves who is the primary for their recommended topics and request presentations from other scientists within the Supersites Program. Each session (A-G) will be 1.5 hrs with the exception of session D, which will be 2 hours in length and H, which will be 1 hr in length.

A. **Particle Mass Spectrometers**. What do we get from near-real time Single Particle Mass Spectrometry data? Do we get more than we put in? Is it in the end, less expensive, providing more accuracy in determining sources? Can results of sufficient accuracy be obtained? What is its role in monitoring for compliance or development of SIPS.
Topic Leaders: Ken Demerjian, John Watson

B. **Semi-continuous PM monitors**. Nitrate. Sulfate, EC/OC, ammonium, other. Which were really worth the effort? Which work and which don't. Is it worth the effort and expense - i.e., do we need highly time resolved sulfate analyses? Nitrate? Are they, in the end, a cheaper easier way to get 24-hr averages? What is their utility in providing information useful to the development of SIPs. Do we need 6 ways to measure sulfate? Are there any clear winners?
Topic Leaders: John Watson Jay Turner

C. **Ultra Fine Particles**. We know much more about the climatology of ultrafine particle production, size distributions of fine particles, and especially, composition. What is the new stuff that we've learned and why is it likely to be important - i.e., to the scientific community and eventually to those that need to make SIPs.
Topic Leaders: John Froines/Costas Sioutas, Ted Russell

D. **Organic Aerosols**
Topic Leaders: Dave Allen, John Ondov, Costas Sioutas
   a) *Secondary vs Primary organic PM mass*. What have we learned about this. What methods give the most information on this issue. What combinations of measurements are needed? What do we need that we don't have.

   b) *Anthropogenic vs Biogenic organic PM*. (Same questions as IIIa).

   c) *Organic and Elemental Carbon*. Can we quantify the differences between the STN and IMPROVE analysis protocols? Are we close to

developing adjustment factors? What have we learned about the differences between the methods for samples representing different types of sources? What have we learned about the use of OC and EC fractions for source apportionment? What about OC sampling artifacts, can they be accounted for, removed?

d)   *Organic Speciation*. To what point have sampling and analysis methods advance in terms of ease of use, minimizing interferences, precision, accuracy, ease of use in network operations? What have we learned about collection and analysis of polar organic compounds? How significant are interferences and how can they be avoided?

E.   **PM mass.** Do we have closure? Do we get it right with the latest TEOM? Is the FRM still useful or do we need to change it or adopt a better measurement strategy? Can we model things missing or do we have to measure them? Is what was used at Supersites enough or do we need something more? If it is enough, can it be implemented by routine monitoring networks? What is the impact of the state-of-the-art on the Standard and SIPs development?
Topic Leaders: Ken Demerjian, Spyros Pandis

F.   **Source Apportionment.**
Topic Leaders: John Ondov, Jay Turner

a)   *Methods Improvements.* What are we able to do that we weren't able to do before? Which instruments produce vital or at least useful information? Do we have any new, improved tracer species or fingerprints?
b)   *Regional and urban aerosols.* What is the influence of regional aerosols on urban environments, how much do they contribute of which species? What components are regional and which are locally generated and impacting primarily the local urban environment? Are local sources in urban areas in the different regions similar? If not, how different are the impacts? What is the spatial representativeness of local sources?

G.   **Emissions Based Modeling.** How well do our models reproduce what was observed? How useful are the continuous measurements in trouble shooting and improving these tools? What are the major remaining questions and needs for the use of these tools in SIP development? How can we combine the models with this set of observations to get more than the sum of the parts? What new insights in terms of chemistry, limiting reagents, ability to link source and receptor impacts, etc, have been gained by model application to date?
Topic Leaders: Spyros Pandis, Ted Russell

H. **Closing Remarks and Summary, Next Meeting, Tentatively Scheduled for October 2004.**