



**DEPARTMENT OF ENERGY  
ATMOSPHERIC SCIENCE PROGRAM  
FY 2007 SCIENCE TEAM MEETING  
Boulder, CO  
October 25-27, 2006  
PROGRAM**



**WEDNESDAY OCTOBER 25**

- 13:30    **Registration; mount posters (coffee, soft drinks, cookies)**
- 14:30    Welcome - **Schwartz**
- 14:35    Welcome - **Williamson**
- 14:50    Housekeeping - **Sheridan**
- 14:55    *Invited Presentation: Emissions and Formation of Organic Aerosol:  
New Insights from Airborne and Ship-Based Measurements*  
Joost de Gouw, NOAA
- MASE SESSION - Daum, chair**
- 15:20    *Aerosol Indirect Effects Observed During MASE*  
P. Daum
- 15:32    *Aerosol Chemical Composition and CCN Properties During 2005 MASE*  
Y.-N. Lee
- 15:44    *Partitioning of Methanesulfonate and Non-Sea-Salt Sulfate in Individual Sea Salt Particles  
Collected at the Pt. Reyes National Seashore*  
Y. Desyaterik, A. Laskin, R. J. Hopkins, A. V. Tivanski, and M. K. Gilles
- 15:56    *Effects Of Aerosol Size Distribution And Chemical Composition Variation On Aerosol First  
Indirect Forcing*  
J. Wang
- 16:08    *Aerosol Processing In Coastal Stratocumulus Clouds: Observational Evidence And Modeling  
Results*  
Mikhail Ovtchinnikov and Richard Easter
- 16:20    **DISCUSSION**
- MAX-TEX SESSION - Berkowitz, chair**
- 16:30    *Overview*  
Carl Berkowitz , Xiao-Ying Yu, Liz Alexander, John Ortega, Tom Jobson
- 16:40    *A First Look at the Airborne High Spectral Resolution Lidar Observations from MAX-TEX*  
John Hair, Rich Ferrare, Chris Hostetler, David Harper, and Anthony Cook
- 16:50    *First look at Correlations and Differences Between AMS Instruments Deployed in the Houston  
Triangle in September 2006: Deer Park, Aldine, and Bayland Park*  
M. L. Alexander, X.-Y. Yu, J. V. Ortega, M. K. Newburn and C. M. Berkowitz
- 17:00    *A first look at PTR-MS and AMS observations from the Aldine site of the Houston Triangle*  
X.-Y. Yu, J. Zheng, M. L. Alexander, J. Ortega, R. Zhang, and C. M. Berkowitz

## WEDNESDAY OCTOBER 25 (continued)

### NUGGET PRESENTATIONS - Williamson, chair

- 17:10 *Laboratory Studies of Processing of Carbonaceous Aerosols by Atmospheric Oxidants*  
Paul Ziemann, Roger Atkinson, Janet Arey, Aiko Matsunaga, Yong Lim, Sonia Kreidenweis, Paul DeMott, Markus Petters, and Anthony Prenni
- 17:15 *Factors Affecting CCN Activity of Soot Aerosols*  
E. S. Cross, J. G. Slowik, P. Davidovits, T. B. Onasch, J. T. Jayne, and D. R. Worsnop
- 17:20 *Size vs. Chemistry for CCN*  
J. Hudson
- 17:25 *Investigation of Hygroscopicity and Cloud-and-Ice Nucleating Activities of Combustion Aerosols*  
Sonia Kreidenweis, Paul DeMott, Markus Petters, Anthony Prenni, Kip Carrico, Kirsten Koehler, John Volckens, Maren Bennett, Rudy Stanglmaier, and Olga Popovicheva
- 17:30 **END OF SESSION**

## THURSDAY OCTOBER 26

### 8:00 **Coffee, Poster viewing**

### MAX-MEX SESSION - Gaffney, chair

- 8:30 *Brief Overview of MAX-Mex*  
Jeff Gaffney
- 8:37 *The Use of Anthropogenic, Biomass Burning, and Volcanic Emission Estimates for Modeling Particulates Downwind of Mexico City*  
Jerome Fast and Christine Wiedenmyer
- 8:44 *Airborne High Spectral Resolution Lidar Observations of Aerosol Spatial Distribution and Optical Properties from MAX-MEX*  
John Hair, Rich Ferrare, Chris Hostetler, Anthony Cook, and David Harper
- 8:51 *Observations of elemental carbon specific absorption at the T1 and T2 sites during the Max-Mex field campaign*  
J. C. Doran, J. C. Barnard, J. D. Fast, E. I. Kassianov, N. S. Laulainen, M. S. Pekour, W. J. Shaw, X.-Y. Yu, W. P. Arnott, L. Paredes-Miranda, R. Coulter, T. Martin, L. Kleinman, S. R. Springston, R. Cary, and D. F. Smith
- 8:58 *Aerosol Optics During Max-Mex*  
W. Patrick Arnott and Lupita Paredes
- 9:05 *Observations Regarding New Particle Formation in Mexico City*  
Kenjiro Iida, Mark Emery, Mark Stolzenburg, and Peter H. McMurry
- 9:12 *The Chemical Composition of Particles Formed by Nucleation in Tecamac, Mexico During MILAGRO*  
Jim Smith and Pete McMurry
- 9:19 *Secondary Organic Aerosol Formation From Anthropogenic Air Pollution*  
R. Volkamer, J. L. Jimenez, F. San Martini, K. Dzepina, Q. Zhang, D. Salcedo, D. R. Worsnop, M. J. Molina, and L. T. Molina

**THURSDAY OCTOBER 26 (continued)**

**MAX-MEX SESSION (continued)**

- 9:26 *Thermodenuder-Aerosol Mass Spectrometer System to Characterize the Aerosol Chemically-Resolved Volatility: Results from Mexico City*  
J. Alex Huffman, Jose-Luis Jimenez, Paul J. Ziemann, John T. Jayne, Timothy Onasch, and Doug R. Worsnop
- 9:33 *SOA Production and Light Absorption as a Function of Photochemical Age*  
Larry Kleinman, Stephen Springston, Gunnar Senum, Yin-Nan Lee, Jian Wang, Linda Bowerman, Peter Daum, Judy Weinstein-Lloyd, John Hubbe, Mike Ortega, Liz Alexander, John Jayne, and Manjula Canagaratna
- 9:40 *Variation of Aerosol Size Distribution and CCN Spectrum at Urban Site During MILAGRO*  
J. Wang
- 9:47 *Absorbing aerosol measurements in a Megacity, in Polluted Clouds and from Biomass Burning: Constraining their climate forcing*  
Claudio Mazzoleni, Manvendra Dubey, Petr Chylek, Pat Arnott, Lupita Paredes, Timothy Onasch, and John Seinfeld
- 9:54 **DISCUSSION**

10:00 **BREAK - POSTERS (80 Min) (coffee, soft drinks)**

**NUGGET PRESENTATIONS - Petty, chair**

- 11:20 *A Chamber Study of Measurements and Optical Properties of Black and Organic Carbon Aerosols*  
A. Chung, B. Barkey, and S. E. Paulson
- 11:25 *Woodsmoke Optics Measurements*  
W. P. Arnott
- 11:30 *Aerosol Refractive Index Retrieval Using A 21 Channel Dual Polarization Polar Nephelometer*  
B. Barkey, A. Chung and S.E. Paulson
- 11:35 *EAKF-CMAQ: Development and Initial Evaluation of an Ensemble Adjustment Kalman Filter Based Data Assimilation*  
V. R. Kotamarthi, A. Zubrow, L. Chen, and M. Stein
- 11:40 *Sensitivity of Concentration of Accumulation-mode Aerosol Particles to the Representation of New Particle Formation and Particle Emissions in Chemical Transport Models*  
Lim-Seok Chang, Douglas L. Wright, Ernie R. Lewis, Robert McGraw, and Stephen E. Schwartz
- 11:45 *Nighttime Lagrangian Measurements of Aerosols and Oxidants*  
Rahul A. Zaveri, Carl M. Berkowitz, John M. Hubbe, Sasha Madronich, Joel Thornton, Stephen R. Springston, Fred J. Brechtel, Timothy B. Onasch, John T. Jayne, and Douglas R. Worsnop
- 11:50 *Secondary Organic Aerosol Formation Through Unique Nitrate Photochemistry*  
M. J. Ezell, Y. Yu, B. D'Anna, S. N. Johnson, T. M. McIntire, C. W. Harmon, A. Zelenyuk, D. Imre and B. J. Finlayson-Pitts
- 12:00 **LUNCH** On your own; Poster viewing (90 min)

**THURSDAY OCTOBER 26 (continued)**

13:30 **CHAPS - Berkowitz, chair**

**Prospective Field Projects - Daum, chair**

14:00 *Indirect and Semi-Direct Aerosol Campaign (ISDAC)*

Steve Ghan

14:05 *Deep Convective Clouds and Chemistry (DC3)*

Steve Ghan

14:10 *ASP Participation in VOCALS-Regional Experiment (Marine Stratus off Chile/Peru)*

Peter Daum, Yangang Liu

14:15 *Winter/Summer Aerosol Composition and Evolution Experiment*

Peter Daum, Yin-Nan Lee, Larry Kleinman, Jian Wang, Stephen Springston, R. McGraw, Jerome Fast

14:20 *Carbonaceous Aerosol Evolution (CARE) Campaign*

Rahul Zaveri, Chris Doran, Carl Berkowitz, Liz Alexander, Alex Laskin, Jerome Fast, John Hubbe, Sasha Madronich, Doug Worsnop, Jose Jimenez, Joel Thornton, Rainer Volkamer

14:25 *The Biospheric Aerosol Production Experiment - BAP*

Paul V. Doskey, V. Rao Kotamarthi, Richard L. Coulter, Yin Nan Lee

14:30 *Time evolution of the optical and chemical properties of smoke from brush and pine forest fires in the relatively dry western US*

Pat Arnott

14:35 *Ganges Valley Aerosol Experiment (GVAX)*

V. Rao Kotamarthi

14:40 *Megacity Aerosol Experiments*

Larry Kleinman

14:45 *Atmospheric Aerosol Characterization and Calibration Facility*

Steve Schwartz, Yin-Nan Lee

14:50 *Rapid deployment capability for characterization of unique events*

Steve Schwartz

14:55 **DISCUSSION**

15:00 **BREAK - POSTERS (30 min) (coffee, soft drinks, cookies)**

15:30 **BREAKOUT SESSIONS TOPICAL WORKING GROUPS**

Findings, deliverables; meeting needs of the climate modeling community; future field study needs; other WG business

*New Particle Formation* - **McMurry**

*Gas-particle Interactions* - **Zaveri**

*Optical Properties* - **Barnard**

*Cloud-aerosol Interactions* - **Daum**

*Modeling* - **Fast**

17:00 **END OF SESSION**

1830 **RECEPTION (Broker Inn; hosted by Brookhaven Science Associates)**

**FRIDAY OCTOBER 27**

8:00 **Coffee, Poster viewing**

8:30 **GENERAL DISCUSSION: Future Field Studies - Daum, Discussion leader**

9:05 *ARM Aerial Vehicle Program (AAVP)*  
Rick Petty

9:10 *Discussion: G-I Current and Prospective Capabilities*  
John Hubbe

**Working Group Summaries - Doran, chair**

9:15 *New Particle Formation* - **McMurry**

9:30 *Gas-particle Interactions* - **Zaveri**

9:45 *Optical Properties* - **Barnard**

10:00 **BREAK - REMOVE POSTERS (30 min) (coffee, soft drinks)**

**Working Group Summaries (cont'd)**

10:30 *Cloud-aerosol Interactions* - **Daum**

10:45 *Modeling* - **Fast**

11:00 **GENERAL DISCUSSION: Getting ASP results into climate models, Ghan, Chair**

11:30 Data policy and data delivery - **Kleinman**

11:40 Future directions for ASP - **Williamson**

12:00 **END**

## POSTERS

<b>FIELD STUDIES</b>
<p><i>Volatility, Size, and Vertical Distribution of CCN in MASE</i></p> <p>Jim Hudson</p>
<p><i>Aerosol Processing In Coastal Stratocumulus Clouds: Observational Evidence And Modeling Results</i></p> <p>Mikhail Ovtchinnikov and Richard Easter</p>
<p><i>The Influence of Fog on Aerosol Optical Properties</i></p> <p>E. Andrews, P. Sheridan, A. Jefferson, A. McComiskey, and J. Ogren</p>
<p><i>Partitioning of Methanesulfonate and non-Sea-Salt Sulfate in Individual Sea Salt Particles Collected at the Pt. Reyes National Seashore</i></p> <p>Y. Desyaterik, A. Laskin, R. J. Hopkins, A. V. Tivanski, and M. K. Gilles</p>
<p><i>Tar Balls: Size-Dependent Chemical Composition of Individual Organic Aerosol Particles Studied with Scanning Transmission X-ray Microscopy</i></p> <p>Alexei V. Tivanski, Rebecca J. Hopkins, and Mary K. Gilles</p>
<p><i>Carbonaceous Aerosol Processing in the Mexico City Metropolitan Area</i></p> <p>T. B. Onasch, J. G. Slowik, P. Davidovits, S. Herndon, E. Wood, D. R. Worsnop, C. E. Kolb, W. B. Knighton, M. Zavala, D. Thornhill, L. Marr, W. P. Arnott, C. Mazzoleni, M. K. Dubey, R. J. Hopkins, M. K. Gilles, Y. Desyaterik, and A. Laskin</p>
<p><i>Variation Of Aerosol Size Distribution And CCN Spectrum At Urban Site During MILAGRO</i></p> <p>Jian Wang</p>
<p><i>Microscopy And Microprobe Studies Of Individual Particles Collected During MILAGRO 2006 Study</i></p> <p>K. S. Johnson, R. Gonzalez, L. T. Molina, R. J. Hopkins, A. V. Tivanski, M. K. Gilles, Y. Desyaterik, and A. Laskin</p>
<p><i>The MAX-MEX T1-T2 Component of the MILAGRO Campaign</i></p> <p>J.C. Doran, J.C. Barnard, J.D. Fast, E.I. Kassianov, N.S. Laulainen, M.S. Pekour, W.J. Shaw, X-Y Yu, W.P. Arnott, L. Paredes-Miranda, R. Coulter, T. Martin, L. Kleinman, S. R. Springston, R. Cary, and D. F. Smith</p>
<p><i>Assessing The Oxidative Capacity Of The Atmosphere: MCMA-2003 as a Case Study</i></p> <p>Philip Sheehy, Rainer Volkamer, Erik Velasco, Luisa T. Molina, M. Elizabeth Alexander, Tom Jobson, Brian Lamb, Deepali Vimal, Sebastien Dusanter, Philip Stevens, and William H. Brune</p>
<p><i>Ground and Aircraft Measurements of Hydroperoxides During the MILAGRO Field Campaign</i></p> <p>Linda Nunnermacker, Judy Weinstein-Lloyd, Barbara Hillery, Brian Giebel, Larry Kleinman, and Stephen Springston</p>
<p><i>MAX-DOAS Measurements during MCMA-2006</i></p> <p>R. Sinreich, T. Wagner, S. Beirle, U. Platt, L.T. Molina, and R. Volkamer</p>

<p><i>Gas and Particle Measurements during MILAGRO-2006 using the ARI Mobile Laboratory</i></p> <p>Miguel Zavala, Scott Herndon, Ezra Wood, Timothy Onasch, Charles Kolb, Berk Knighton, Claudio Mazzoleni, Mavendra Dubey, Dwight Thornhill, Linsey Marr and Luisa T. Molina</p>
<p><i>Evidence Of Long-Range Transport Of Mexico City Outflow Based On CMET Balloon Trajectories During The MILAGRO 2006 Campaign</i></p> <p>Paul Voss, Rahul A. Zaveri, Tom Hartley, Pamela DeAmicis, Indira Deonandan, Oscar M. Antonio, Gaston C. Jiménez, David Greenberg, and Maurico Estrada</p>
<p><i>Obtaining the Diameter Growth Rate and Particle Current during Nucleation and Growth Periods from Measurements of Charge Distributions and Aerosol Size Distributions</i></p> <p>Kenjiro Iida, Mark Stolzenburg, and Peter H. McMurry</p>
<p><i>The Chemical Composition Of Particles Formed By Nucleation In Tecamac, Mexico During MILAGRO</i></p> <p>Jim Smith</p>
<p><i>Thermodenuder-Aerosol Mass Spectrometer System to Characterize the Aerosol Chemically-Resolved Volatility: Results from Mexico City</i></p> <p>J. Alex Huffman, Jose-Luis Jimenez, Paul J. Ziemann, John T. Jayne, Timothy Onasch, and Doug R. Worsnop</p>
<p><i>Organic Aerosol Analysis with the Aerodyne HR-ToF-AMS in Mexico City during MILAGRO/MAX-MEX</i></p> <p>Allison Aiken, Dara Salcedo, J. Alex Huffman, Michael Cubison, Ken Docherty, Ingrid Ulbrich, Jose L. Jimenez, Douglas R. Worsnop</p>
<p><i>An initial look of particulate organic matter characteristics at surface sites during the 2006 MILAGRO Campaign</i></p> <p>X.-Y. Yu, M. L. Alexander, T. B. Onasch, R. Cary, D. Worsnop, E. Cross, C. M. Berkowitz, N. S. Laulainen, J. C. Doran, J. Fast, R. Zaveri, A. Laskin, Y. Desyaterik, R. Coulter, T Martin, and J. Satola</p>
<p><i>Aerosol Optical Properties in Mexico City 2003 and 2006</i></p> <p>Nancy A. Marley and Jeffrey S. Gaffney</p>
<p><i>Natural Radioactivity Measurements in Fine Aerosols</i></p> <p>Jeffrey S. Gaffney and Nancy A. Marley</p>
<p><i>Research Flights of the DOE RAF during MILAGRO 2006</i></p> <p>Stephen R. Springston</p>
<p><i>Aerosol Chemical Composition Determined on Board the DOE G1 Aircraft during MAX-Mex in March 2006</i></p> <p>Yin-Nan Lee, John Jayne, Lizabeth Alexander, Manjula Canagaratna, Stephen Springston, Gunnar Senum, John Hubbe, Peter Daum, and Lawrence Kleinman</p>

*Ozone Production Rates, Secondary Organic Aerosol and Changes in Aerosol Light Absorption Based on Observations from the G-1*

Larry Kleinman, Stephen Springston, Gunnar Senum, Yin-Nan Lee, Jian Wang, Linda Nunnermacker, Peter Daum, Judy Weinstein-Lloyd, John Hubbe, John Ortega, Liz Alexander, John Jayne, Manjula Canagaranta, and Jochen Rudolph

*Airborne High Spectral Resolution Lidar Observations of Aerosol Spatial Distribution and Optical Properties from MILAGRO/MAX-MEX*

John Hair, Rich Ferrare, Chris Hostetler, David Harper, and Anthony Cook

*Absorbing aerosol measurements in a Megacity, in Polluted Clouds and from Biomass Burning: Constraining their climate forcing*

Claudio Mazzoleni, Manvendra Dubey, Petr Chylek, Pat Arnott, Lupita Paredes, Timothy Onasch, and John Seinfeld

*Megacity Radiative Forcing: A Mexico City Case Study*

Manvendra K. Dubey, Seth Olsen, Petr Chylek, Claudio Mazzoleni, Yongxin Zhang, James T. Randerson, Larry Horowitz, Lupita Paredes, and Pat Arnott

*Nighttime Lagrangian Measurements of Aerosols and Oxidants*

Rahul A. Zaveri, Carl M. Berkowitz, John M. Hubbe, Sasha Madronich, Joel Thornton, Stephen R. Springston, Fred J. Brechtel, Timothy B. Onasch, John T. Jayne, and Douglas R. Worsnop

*G-1 Configurations*

John Hubbe

**MODELING**

*Proposed Aerosol Treatment for CAM4*

Steven Ghan

*Aerosol Properties and Processes: A Path from Field and Laboratory Measurements to Global Climate Models*

Steven Ghan and Stephen E. Schwartz

*An Introduction to the GISS-MATRIX Microphysical Aerosol Model*

Susanne Bauer, Douglas Wright, Dorothy Koch, Surabi Menon, Bob McGraw

*Model Forecast of Aerosol near Point Reyes, California, Summer 2005*

Cynthia Atherton, Daniel Bergmann, Patrick Sheridan

*The Evolution Of Particulates And Aerosol Radiative Forcing Over Mexico Using The WRF-Chem Fully-Coupled Meteorology-Chemistry-Aerosol Model*

J. D. Fast, J. C. Doran, J. C. Barnard, R. A. Zaveri, L. Kleinman, S. Springston, and C. Wiedenmyer

*Sensitivity of Concentration of Accumulation-Mode Aerosol Particles to the Representation of New Particle Formation and Particle Emissions in Chemical Transport Models*

Lim-Seok Chang, Douglas L. Wright, Ernie R. Lewis, Robert McGraw, and Stephen E. Schwartz



*Development of a secondary organic aerosols formation mechanism and comparison with measurements*

Luis E. Olcese, Joyce E. Penner and Sandy Sillman

*Anthropogenic Black Carbon and Organic Carbon Particulate Matter Present a Large Uncertainty in the Estimation of Future Climate*

A. Chung, B. Barkey, and S. E. Paulson

*Heat Capacity, Time Constant, and Sensitivity of Earth's Climate System*

Stephen E. Schwartz

#### **LABORATORY/INSTRUMENTATION**

*Secondary Organic Aerosol Formation Through Unique Nitrate Photochemistry*

M. J. Ezell, Y. Yu, B. D'Anna, S. N. Johnson, T. M. McIntire, C. W. Harmon, A. Zelenyuk, D. Imre and B. J. Finlayson-Pitts

*Aerosol Particle Density Determination Using Light Scattering in Conjunction With Mass Spectrometry*

E. S. Cross, J. G. Slowik, P. Davidovits, J. D. Allan, T. B. Onasch, J. T. Jayne, D. K. Lewis, M. Canagranata, and D. R. Worsnop

*What is Atmospheric Black Carbon? Chemical Bonding and Structural Information on Black Carbon Reference Materials and Atmospheric Aerosols*

Rebecca J. Hopkins, Alexei V. Tivanski, Bryan D. Marten, and Mary K. Gilles

*Direct Aerosol Absorption Measurements using Photothermal Interferometry*

Arthur J. Sedlacek III and Jeonghoon Lee