

# PARTICULARS

Newsletter of the American Association for Aerosol Research

Spring 2007

## Welcome to a New Edition of *Particulars*!



Lately I have attended and participated in several public meetings in a mixed industrial/residential area of Los Angeles. Our latest study depends upon widespread community support and we have been trying to let them know what we are up to (after asking for help). It has been a very interesting experience for me. At these meetings I have been impressed that many of the attendees have a pretty good awareness of atmospheric aerosols. I probably shouldn't be surprised, given that the attendees went out of their way to attend these forums.

However, I have also been struck by how many just consider air quality and atmospheric aerosols to be "bad" and want the problem fixed yesterday. I found it worrisome that even with an involved and educated audience that so many had a poor grasp of the issues involved (admittedly, this may have just been due to me and my explanatory skills — or lack thereof). We have been very fortunate and have found considerable community support for our project. I wonder, however, how much support we will continue to receive if the underlying science is not grasped and our monitoring efforts produce the "wrong" answer.

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On behalf of all the editors of *Particulars*, I would like to thank those of you who participated in the recent membership survey and responded to the newsletter-related questions. When the data become available from the survey, we will share the results with you.

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Sheldon Friedlander passed away while this newsletter was being compiled. He was one of the pioneers in our field and one of the founders of AAAR. He will be missed (written by the owner of two dog-eared editions of *Smoke, Dust and Haze*). In the President's Message, Pratim Biswas provides links to his obituary and further information on how to honor his life and contribution.

Katharine Moore  
katharine.moore@usc.edu

## CALENDAR OF EVENTS

### June 16-20, 2007

International Society for Aerosols in Medicine  
16th International Congress  
Tours, France  
<http://www.isam.org>

### August 13-17, 2007

2007 - 17th International Conference on Nucleation and Atmospheric Aerosols  
National University of Ireland  
Galway, Ireland  
[www.icnaa.org](http://www.icnaa.org)

### August 26-29, 2007

2007 - 5th Asian Aerosol Conference  
The Splendor Kaohsiung  
Kaohsiung, Taiwan  
<http://www.aac2007.org>

### August 29 to September 1, 2007

Third International Symposium on Nanotechnology, Occupational and Environmental Health  
Taipei, Taiwan  
<http://nano-taiwan.sinica.edu.tw/EHS2007/index.htm>

### September 24-28, 2007

AAAR 2007 Conference  
Reno, NV

### October 14-18, 2007

17th Annual Conference of the International Society of Exposure Analysis Partnerships: Exploring Innovative Approaches in Exposure Assessment  
Durham/Research Triangle Park, North Carolina  
[www.iseaweb.org](http://www.iseaweb.org)

## 2008

### October 20-24, 2008

Annual AAAR Conference  
Rosen Shingle Creek Resort and Golf Club  
Orlando, FL

## 2009

### October 26-30, 2009

Annual AAAR Conference  
Hyatt Regency Minneapolis  
Minneapolis, MN

## President's Message

**Pratim Biswas**  
**President**

The winter months have passed and AAAR is warming up to renewed activity. We all witnessed a great 7th International Aerosol Conference and I reported on this in my message in the previous newsletter. I am happy to report that the conference was successful in more ways than one – great presentations, great events, and a sizeable financial gain – thanks to the support of our sponsors. The board will be cautiously planning activities, always keeping in mind the longer term viability of our organization.

The board also held its Winter Meeting (I prefer to call it the Spring meeting – as we are going to spring into action) – and we discussed several initiatives such as the Fellows Program, ways to promote involvement of students, and building bridges with other organizations.

Jay Turner and his conference team have been busy planning for the 26th Annual Conference to be held September 24-27, 2007, in Reno, NV. Please mark your calendars and save the date!

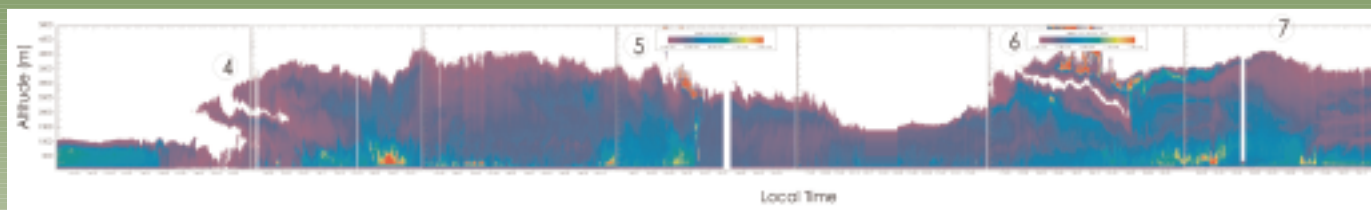
We were all saddened by the passing away on February 9, 2007, of the “senior statesman” of the Aerosol community – Dr. Sheldon Friedlander (see [http://www.aaar.org/misc\\_content/FriedlanderBio0207.pdf](http://www.aaar.org/misc_content/FriedlanderBio0207.pdf) for details). A guest book is available at <http://www.legacy.com/latimes/Obituaries.asp?Page=LifeStory&PersonId=86432642>

His pioneering speech at the 7th International Aerosol Conference was probably his last one at a major event – and it summarized where we should be headed as an organization. He coined the term “aerosol science and technology is an enabling discipline” – let us work together to realize this vision. We will miss him and his cheerful encouragement.

I look forward to hearing from you – so please send in your comments and suggestions. Till next time, ciao.

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## Aerosols in the Spotlight



The University of Iowa's mobile lidar points vertically and operates while in motion to produce a transect of boundary layer aerosols. Regular stops are made so that rooftop solar photometers may be used to estimate the particulate size distribution which aids inversion of the lidar data to obtain overall particulate concentrations. The four-panel lidar images shown above is a transect produced by the UI mobile lidar platform. The vertical dimension is height above the ground (max value is 5000m) and the horizontal dimension is time of day (or, equivalently the distance from the Gulf of Mexico in this example). White areas are clean air from above the

boundary layer. Blue colors indicate low particulate concentrations and reds indicate high ones. This transect starts near Vera Cruz and ends inside Mexico City. The area near 5 is the city of Puebla and can clearly be seen in the data. The data is part of the MILAGRO (Megacity Initiative: Local and Global Research Observations) study effort. Further information on Milagro can be found at:

[www.windows.ucar.edu/tour/link=/milagro/milagro\\_intro.html](http://www.windows.ucar.edu/tour/link=/milagro/milagro_intro.html)

Image courtesy of William Eichinger, The University of Iowa IHR Hydrosience & Engineering

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## AAAR to Visit the “The Biggest Little City in the World”

At AAAR’s upcoming 26<sup>th</sup> Annual Conference, you can both present and learn about the latest advances in aerosol science. To be held September 24-28 in Reno, Nevada, the conference will follow the AAAR tradition of offering a high caliber technical program in a collegial and congenial setting.

Monday, September 24, will start things off with a menu of 16 tutorials covering a range of aerosol topics. Whether you are relatively new to the field and seek introductory materials, or seek advanced information to expand your understanding of allied areas, the tutorials have something of interest to you. To guide your choices, abstracts for each tutorial will be posted on the AAAR Web site.

Each of the remaining four days (September 25-28) will begin with a plenary lecture followed by parallel technical sessions. We will continue to maintain a balance of platform and poster presentations. Three symposia have been programmed to focus on these topics:

- recent advances in our understanding of aerosol-cloud-climate interactions;
- insights into organic aerosol characteristics and dynamics as informed by advanced measurement techniques; and
- ground-breaking innovations in medicinal aerosols for pulmonary and nasal drug delivery.

The exhibition area, open Monday through Thursday, offers a wonderful opportunity to learn directly from more than 25 vendors about their wares in the rapidly advancing areas of aerosol measurement and engineering services.

Abstracts submitted after April 13 were considered for presentation in the late-breaking poster sessions. Conference registration will be accepted starting in **mid-May**; register by **August 1** to receive the early-bird rate. Reserve your room at the conference hotel by **August 22** to guarantee the conference rate.

**Please be advised that the AAAR sleeping room block is expected to sell out quickly, and availability and rate cannot be guaranteed once the AAAR block is filled.**

This year’s conference will be held at the Grand Sierra Resort and Casino in Reno. The Grand Sierra offers numerous and novel on-site dining and entertainment options, such as an aqua golf driving

range where you can test your skills at lofting balls onto islands. Reno, known as the “The Biggest Little City in the World,” offers arts and cultural activities in a casual setting. It is also the eastern gateway to the Lake Tahoe area, with numerous opportunities for outdoor adventures. Consider spending the weekend before or after the conference exploring this stunning natural playground.

We look forward to your participation and ask you to please encourage your colleagues to join us in Reno.

See you there!

Jay Turner, Conference Chair



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## “In Case You Missed It”

### Aerosols, Wind Speeds, and Precipitation

Jacobson and Kaufman have used a three-dimensional computer model and satellite data to investigate the effects of aerosols on the distribution of wind speeds and the resulting feedbacks to precipitation, water supply, and wind energy across California. According to theory, increased concentration of aerosols should reduce wind speeds, due to the increase in atmospheric stability associated with the particle loading. The consequences of this include decreased evaporation and rainfall, a multitude of secondary impacts, such as reduced availability of wind energy for the generation of electricity and decreased hydroelectric potential. Jacobson and Kaufman find that pollution by aerosols may be responsible for decreasing local winds by up to ~ 8% and, together with the second indirect aerosol effect, may be reducing precipitation by 2 to 5%. (Geophys. Res. Lett. 33, L24814 (2006))

### Cardiovascular Risks from Fine Particulate Pollution


Miller et al. report on data from the Women's Health Initiative (WHI) observational study, which finds that nonfatal cardiovascular events are strongly associated with long term exposure to fine particulate concentrations in the urban air. They studied 65,893 women, who had an average long-term exposure to  $PM_{2.5}$  of  $13.5 \mu\text{g}/\text{m}^3$  with two-thirds of the subjects falling under the NAAQS standard. The study found that every increase of  $10 \mu\text{g}/\text{m}^3$ , increased the risk of fatal cardiovascular disease by about 75%. This is several times higher than that reported by a previous study by the American Cancer Society. The WHI study considered all regulated air pollutants ( $PM_{2.5}$ ,  $PM_{10}$ , sulfur dioxide, nitrogen dioxide, carbon monoxide, and ozone) and found cardiovascular risk associated only with  $PM_{2.5}$  concentrations. (Miller et al., N. Engl. J. Med. (2007), 356(5), 447)

### Prehuman CCN Concentrations

“How can we estimate the aerosol content of the atmosphere before there was human activity?” A question that Meinrat Andreae tries to answer in a recent article in Science by providing rough estimates of what CCN concentrations might have been in the prehuman atmosphere. He concludes that prehuman aerosol levels may have been very similar over continents and oceans, ranging from a few tens per  $\text{cm}^3$  in biogenically inactive regions or seasons to a few hundred per  $\text{cm}^3$  under biologically active conditions. This estimation invalidates the conventional classification of air masses into maritime and continental according to their aerosol content. (Meinrat Andreae, Science (2007), 315, 50)

### Brownian Motion of Ellipsoids

The Brownian motion of spherical particles is well understood, thanks to pioneering work of Einstein and Perrin. For ellipsoidal particles, however, the problem becomes much harder because rotational and translational motions are coupled. This problem has been studied theoretically, but the coupling was not demonstrated experimentally until now. Han et al. demonstrate this coupling using digital video microscopy for a combined theoretical and experimental investigation of ellipsoidal particles, and observe the crossover from short-time anisotropic behavior to long-time isotropic diffusion. (Han et al. (2006), Science, 314, 626)



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## Thank You Sponsors!

AAAR Would Like to Thank the Following Sponsors for Their Support...



## AAAR Would Like to Welcome the Following New Members:

*\*denotes student member*

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Dan Deaton, KOS Pharmaceuticals, Inc.

Robert Lynch, Nanogram Corp

Li-Ming Lo, National Institute for Occupational Health  
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Daniel Verreault\*, Hôpital Lavale

*AAAR would also like to welcome our newest organizational  
sponsor, ChemImage, Corp., and their two member  
representatives:*

Linda Batykefer

Wesley Hutchison



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## AAAR JOB POSTINGS

### Career Opportunities in Aerosol Research

*To post a job opening on the AAAR Web site (and a short version in the newsletter), please submit a description of the job electronically by e-mail or in an ACSII text file to AAAR (e-mail: [info@aaar.org](mailto:info@aaar.org)). The price is \$150 U.S. for a maximum of 200 words. The posting will remain as long as needed, up to six months. Please send a check (payable to the AAAR) to AAAR, Attn: Deanna Bright, 15000 Commerce Parkway, Suite C, Mt. Laurel, NJ 08054, and note that this is payment for a job posting on the AAAR Web Site. We are not able to accept resumes.*

**Environmental Health Laboratory, Outdoor Air Quality (OAQ) Program**  
**Special Studies Research Group**  
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Assistant Professor

**The Department of Environmental Engineering Sciences at the University of Florida**  
Tenure-track faculty position

## OBITUARY

Prof. Sheldon Friedlander passed away at his Pacific Palisades home in California on February 9, 2007.

Sheldon Friedlander was known to all, and was one of the founders of the American Association for Aerosol Research, and senior statesman for the field of Aerosol Science and Technology. He coined the phrase "...aerosol science and engineering is an enabling discipline..." and worked tirelessly to popularize this concept. We will all miss him and his cheerful encouragement, but let us continue to work to make his vision a reality.

*To see full descriptions of classified ads, please visit [www.aaar.org/career.htm](http://www.aaar.org/career.htm).*





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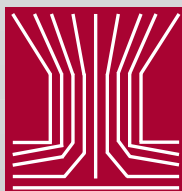
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AAAR staff is here to help with any and all questions you may have on the association, benefits, dues, the annual conference and more. Office hours are Monday - Friday 8:30 AM - 5:00 PM (EST). Phone calls and e-mails are typically answered within 24 hours.

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