

# PARTICULARS

Newsletter of the American Association for Aerosol Research

Fall 2005

## Looking Back at AAAR 2005

By Spyros N. Pandis, 2005 Conference Chair

If you did not make it to Austin in October for our Annual Conference, I think you missed a great meeting. OK, I am probably a little biased, but it has been more than two months since the end of AAAR-05 and I have not received any major complaints. Here is a summary of what you may have missed:

- The meeting set new records for attendance (more than 800 participants), presented papers (also around 800), and mariachi bands playing during the last talk of the day (one).
- There were, as usual, a lot of exciting results presented during the four days of the conference. The abstracts can be found on the AAAR Web site at www.aaar.org/archived meetings.htm.
- Austin was a great host city and provided a lot of opportunities for entertainment.
- The meeting ran smoothly thanks to the efforts of the Association Headquarters staff, Donald Dabdub, and Suzanne Hering who took care of everything related to the abstracts, the working group chairs, the organizers of the six specialty symposia, the session chairs, and their assistants. Thanks to them, the conference chair almost qualified for unemployment benefits.
- The 16 tutorials on Monday organized by Suresh Dhaniyala were of high quality and continued this remarkable AAAR tradition. The total tutorial attendance was approximately 450.
- This year we highlighted the poster presentations even more by having the poster sessions as the first sessions of the day and at the same time fueling the meeting attendees with sugar and caffeine.
- Plenary talks focused on looking at atmospheric aerosols from space (Ralph Kahn), the health effects of these particles (Dan Costa), the applications of aerosol technology in manufacturing advanced materials (Sotiris

Pratsinis), and the insights about the composition, sources, properties, and effects of atmospheric aerosols gained from the recent advances in aerosol mass spectroscopy (Jose Jimenez).

• For those of us who enjoy meat (my apologies to vegetarians) Austin proved that it has the best barbeque in the country. For those who may disagree, please check out the Saltlick (www.saltlick.com) in Driftwood during your next visit to Austin (AAAR 2009).



You will find additional information and photographs from the award ceremonies and other events that took place during AAAR 2005 in other sections of the newsletter. There are also some additional photographs of AAAR members having (too much?) fun in bars around the meeting hotel, but I doubt that they can be printed in this newsletter...

My thanks to everybody who helped make AAAR-05 a successful meeting. Also, there are only 260 days left to the International Aerosol Conference in St. Paul, so don't forget to submit your abstract.



## Letter from the Editor

#### By Cynthia Twohy, Editor

Dear Readers:

Hi--I'm very happy to take over from Mike Hannigan as editor of Particulars this year. My able assistant editors are Katharine Moore and Britt Holmén. I can't promise that my letters will be as entertaining as Mike's (in fact I'm sure they won't be); however, hopefully you will find them of interest. By the way, you may have missed Mike at the conference in Austin because his wife gave birth to a beautiful baby boy, Galileo, on November 1.



Proud father, Mike Hannigan, and little Galileo.

Over the past few years, we have been trying to make this newsletter more valuable and interesting for you. For example, we added "Aerosols in the Spotlight" and "In Case You Missed It" to include more items of scientific interest. In order to make the career

opportunity listings that are posted on the AAAR Web site

(www.aaar.org/career.htm) more useful for employers and employees alike, we now include a short version of the listings at the end of Particulars.



And in our last issue (Summer 2005), Sonia Kreidenweis detailed AAAR's revenues and expenses (i.e., where your conference registration fee goes), and Amy Williams explained the importance of the AAAR room block at the conference hotel. These are details that are usually discussed only at board of directors' meetings, but we hope you found them interesting!

I'd like to make the newsletter even more relevant to you, our readers, and invite your participation. So please send me any ideas or comments you have, so that we will continue on the right track. And if you have any eyecatching graphics to use in "Aerosols in the Spotlight" or tidbits of interesting information for "In Case You Missed It," please send them my way to twohy@coas.oregonstate.edu!

## 2005 Award Winners

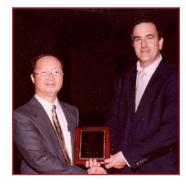
2005 Kenneth T. Whitby Award: Da-Ren Chen

2005 Sinclair Award: Richard Chang

2005 Sheldon K. Friedlander Award: Athanasios Nenes

2005 Benjamin Y. H. Liu Award: Josef Gebhart

The 2005 Thomas T. Mercer Award was given by ISAM at their annual meeting in Perth, Australia. The winner of the 2005 Award was Andrew Clark.



Kenneth T. Whitby Award
Recipient Da-Ren Chen and
Award Committee Chair Bill Dick



**David Sinclair Award**Award Committee Chair Bill Dick and Recipient Richard K. Chang



**Sheldon K. Freidlander Award** Recipient Athanasios Nenes



Benjamin Y. H. Liu Award Josef Gebhart

## **Executive Director's Report**

#### By Amy Williams, Certified Association Executive

The recent conference in Austin was among the best, and was certainly the biggest, conference ever for AAAR. As mentioned previously, we had a record number of abstract submissions, which then translated into a record number of conference registrations (804). We raised over \$73,500 in sponsorship support – the most for any Annual Conference – which allowed us to offer student travel grants, upgraded conference bags, and some enhanced breaks and receptions. Special thanks to our 2005 conference sponsors:

- Aradigm Corp.
- EPRI
- Jet Propulsion Laboratory (NASA)
- Lovelace Respiratory Research Institute
- National Aeronautics and Space Administration (NASA)
- National Institute for Occupational Safety and Health (NIOSH)
- National Science Foundation
- NOAA
- Quant Technologies LLC
- Sunset Laboratory
- Thermo Electron Corporation
- TSI, Inc.
- U.S. Army Research Office
- University of New Hampshire

The Hilton Austin was a beautiful new facility that had plenty of space to accommodate our meeting, which as we continue to grow, is getting harder and harder to find. The feedback from attendees regarding the hotel and Austin, in general, was very positive.

I'd like to thank the numerous volunteers that gave of their valuable time to ensure that the conference was a success. First and foremost, this year's conference chair Spyros Pandis. Also, Suresh Dhaniyala (tutorial chair), Tom Merrifield (exhibits co-chair), Tyler Beck (exhibits co-

chair), Allen Robinson (student liaison), Donald Dabdub (abstract processing), Susanne Hering (abstract processing), Tony Wexler (sponsorship development) and this year's Technical Program Committee (Catherine Almquist, Cort Anastasio, Alfredo Armendariz, Suresh Dhaniyala, Ann Dillner, David Ensor, Andrey Filippov, Andrew Maynard, and



Mark Sippola). Without their hard work, this conference would not have been possible!

I'd be remiss if I didn't also thank Sonia Kreidenweis for her service as president this year. I have enjoyed working with her and so appreciate her dedication, responsiveness, and support.

Looking ahead, I'm happy to report that we have just signed a multi-year contract with the Rosen Shingle Creek in Orlando, Fla., for the 2008, 2011, and 2014 AAAR Annual Conferences. This is a brand new property (opening in 2006) that has MORE than enough space to support our meeting, a host of on-site amenities, and a fun and exciting locale that will make it a wonderful venue for our conference. Because of the challenges that we face in finding a hotel that can accommodate our meeting, the board is working to enter into multi-year arrangements with venues that meet our needs. Through 2014, Orlando will be our East Coast location. We are now in the process of looking for Central and West Coast locations.

Don't forget to mark your calendars for the 7th International Aerosol Conference, which will be taking place September 10-15 in St. Paul, Minn. The abstract submission site is now live and the deadline to submit is February 1, 2006.

Have a wonderful holiday season!

Amy

Amy Williams, CAE Executive Director

## **Industry News**

Early this November, **Sceptor** introduced its state-of-theart **BioSimT Dispenser**, a device touted to permit the ability to conduct on-site tests of biohazard detectors, protective clothing, filters, emergency preparedness exercises, and other biosafety measures by dispensing aerosols in repeatable amounts.

Sceptor's patent-pending dispenser is a portable, self-contained medical-grade metered dose dispenser (MDD) that disperses a precise, repeatable quantity of BioSim particles into the air at the touch of a button. No external pressure source or reagent mixing is required.

For maximum safety, the MDD dispenses a measured dose that meets OSHA requirements for particles allowable in the air. Since the system does not use pathogens or other microorganisms for testing, there is no risk of infection or allergic reaction to the people in a facility.

The dispenser is currently used with BioSim Bg (Bacillus globigii) as a simulant to test the efficiency of biothreat detection devices that use polymerase chain reaction (PCR). BioSim products compatible with other detection methods such as immunoassay will be available in the near future.

Unlike other nebulizers, the BioSim MDD disperses its contents as a dry aerosol, enabling the particles to flow through the air like an actual biohazard.

In other news, **TSI** makes its mark with the **FMPS**<sup>TM</sup> spectrometer which provides real-time measurements of rapidly changing aerosols.

The TSI® Model 3091 Fast Mobility Particle Sizer<sup>TM</sup> (FMPS<sup>TM</sup>) spectrometer measures particles in the range from 5.6 to 560 nm, offering a total of 32 channels of resolution (16 channels per decade). It uses multiple, lownoise electrometers for particle detection. This produces particle-size-distribution measurements with one-second resolution and provides the ability to visualize particle events and changes in particle size distribution in real time.

The FMPS spectrometer uses a high flow rate (10 L/min), minimizing diffusion losses of ultrafine and nanoparticles. It operates at ambient pressure to prevent evaporation of volatile particles. It requires no consumables, and it is easy to transport, set up, and operate. This instrument can be configured to measure single or multiple runs continuously for up to 12 hours in length. A large, color VGA display and built-in control knob provide easy access to instrument features, set-up menus, and data displays.

## Fuchs Memorial Award (2006)

The Fuchs Memorial Award Committee invites nominations for the 2006 Award, to be presented at the 7<sup>th</sup> International Aerosol Conference in St. Paul, Minn., USA, September 10-15, 2006.

This award, established in honor of the late Professor Nikolai Albertovich Fuchs (1895-1982), is given every four years in recognition of exceptionally meritorious research contributions to the field of aerosol science and technology. The award is intended as a continuing recognition of Professor Fuchs' contributions to the international scientific community, as well as a means of encouraging the same high standards among contemporary scientists in conducting aerosol research.

The regulations and procedures are published on the International Aerosol Research Assembly (IARA) Web site, www.iara.org. Questions concerning the award can be directed to the Award Committee Chair, Prof. John H. Seinfeld at Seinfeld@caltech.edu. The deadline for all nominating materials is April 1, 2006. Nomination material (in six copies) should be submitted to the Award Committee Chair by the deadline date:

#### John H. Seinfeld

California Institute of Technology 1200 E. California Blvd., 210-41 Pasadena, CA 91125 USA

Phone: (626) 395-4635 • Fax: (626) 796-2591 • E-mail: seinfeld@caltech.edu

The Fuchs Award is jointly administered by the Gesellschaft für Aerosolforschung, the Japan Association of Aerosol Science and Technology, and the American Association for Aerosol Research.

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### President's Column

#### **Tony Wexler**

I would like to start my first President's Message by pointing out the obvious: AAAR is a member organization run by member volunteers, and it is these dedicated volunteers that make AAAR so strong. I would like to welcome new volunteers to the board and thank some of our volunteers for service in strengthening AAAR over the years and bringing us to where we are today.

Sonia Kreidenweis just stepped down as president. The president succession is three years, which means Sonia and I have worked together for the last two years on uncountably large, extra large, and jumbo issues that have come up from left, right, and center fields. As vice president, she initiated a development effort that simply took off last year. She worked hard to help this year's conference committee put together a great meeting and, because we are hosting the International Aerosol Conference (IAC) next year, she also worked with the IAC Organizing Committee to put a lot of pieces in place for the next meeting. Finally, she has volunteered to assume many of the duties of vice president for the second time around to relieve Pratim Biswas, current vice president, who is also technical program co-chair for the IAC and will have his plate fuller than usual. Thank you Sonia for everything that you've done for AAAR. Chris Sorensen has now joined the board as VP-elect.

Evan Whitby completed his term as secretary keeping us all honest and recording all that transpires at our various board meetings throughout the year. Yung Sung Cheng has moved up from secretary-elect to secretary. Lara Gundel now starts the second year of her two-year term as treasurer and Melissa Lunden joins the board as treasurer-elect. The finances of the AAAR are now in the hands of Lawrence Berkeley Laboratory scientists (coincidentally, both Lara and Melissa are colleagues at LBL).

I would also like to thank Sheryl Erhman, Melissa Lunden, and Paul Ziemann, who served as board members for the last three years and welcome Murray Johnston, Paul Solomon, and Tiina Reponen to the board for the beginning of their three-year terms.

The biggest event each year for AAAR is the annual conference and this year was the largest ever. Many thanks go to Spyros Pandis, technical program chair (see his column in this issue), who was recruited to the job before any thought crossed his mind that he'd be organizing a meeting in the U.S. while in Patras, Greece. Gil Sem, David Pui, Pratim Bismas, and Da Ren Chen are conference co-chairs and technical program co-chairs for the upcoming IAC in St. Paul, Minn., next September, and they have already been working hard for a couple of years in preparation.

Many organizations helped sponsor the conference this year: Aradigm Corp., EPRI, Jet Propulsion Laboratory (NASA), Lovelace Respiratory Research Institute, National Aeronautics and Space Administration (NASA), National Institute for Occupational Safety and Health (NIOSH), National Science Foundation, National Oceanic and Atmospheric Administration



**Outgoing President Sonia Kreidenweis with Incoming President Anthony Wexler** 

(NOAA), Quant Technologies LLC, Sunset Laboratory, Thermo Electron Corporation, TSI, Inc., U.S. Army Research Office, and the University of New Hampshire. Thank you very much for sponsoring the meeting, a special session, or helping support student travel to the meeting.

As you know, AAAR presents a number of awards each year. Currently, many of these awards are not financially sustainable in that we do not receive enough income from the award investment to pay the award and maintain the award balance against inflation. Each year, the board tries to raise funds for one award to bring it to the level where it is financially self-sustaining. At the 2004 annual meeting, we solicited donations for the Sinclair Award and were very successful at bringing it close to the sustainable target of \$27,000. This year we solicited funds for the Friedlander Award and also moved it very close to this target, raising nearly \$5,000 plus nearly \$1,000 for the other award funds. I would like to thank everyone for contributing to these awards, which honor the past and future scholars in our community. On the next page is a list of donors to AAAR – thank you for your generosity.

I would like to thank the AAAR staff for taking care of business everyday, in every way. In "particular" (pun intended), Amy Williams, the AAAR executive director, for running the operation so well; Ann Mitchell, conference planning, for organizing our annual conference in many large and small ways; and Deanna Bright, the voice and fingers (for those who e-mail) of AAAR.

The board has a number of items on its agenda for the coming year – I'd like to discuss one that is "particularly" (yes, pun intended again) exciting. Rick Flagan, editor of  $AS \mathcal{E}T$ , and I have been working on a program to scan and digitize all the pre-electronic-era issues of the journal to post them on the Web as a service to our members and the wider research community. We received a very cost-effective quote from the Caltech Library and the sample article was spectacular – the quality of the image was excellent and the OCR of the text allowed keyword searching in the image, even recognizing hyphenated words. Rick and I will continue to move this program forward hoping to complete it this year.

## 2005 CONTRIBUTORS TO AAAR AWARD FUNDS

The following individuals generously contributed to the AAAR Award funds during the recent Annual Conference in Austin. Unless otherwise indicated, contributions were made to this year's highlighted award, the Sheldon K. Friedlander Award, which is presented annually to a young scientist in recognition of an outstanding thesis.

#### \$500 - \$1,000 Donors

Dan Costa (Whitby) Philip Hopke Jay Turner

#### \$250 - \$499 Donors

Lara Gundel Spyros Pandis Tony Wexler

#### \$100 - \$249 Donors

Pratim Biswas Charles Brock Ian Kennedy Michael Kleinmann Sonia Kreidenweis Janet Macher Kim Prather Chris Sorensen John Tisch Ron Wolff (Mercer)

#### \$25 - \$50 Donors

Dave Alburty
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Prakash Kumar
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Tiina Reponen
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James Wilson (Whitby)
Brian Wong

Chang-Yu Wu Barbara Wyslouzil Paul Ziemann (Whitby)

#### \$10 - \$24 Donors

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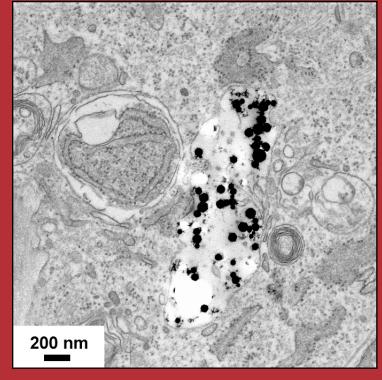
In total, just under \$5,800 was raised to support the AAAR Award Funds. Thank you for your generous contributions! To make a contribution to any AAAR Award, please visit www.aaar.org and choose "Awards."

## **AEROSOLS IN THE SPOTLIGHT**

This TEM image shows Fe<sub>2</sub>O<sub>3</sub> nanoparticles taken into a cultured human aortic endothelial cell via the folding inward of the cell's membrane to form a vacuole. Researchers at UC Davis are investigating the impacts of metal oxide particles on these cells due to the association between adverse health effects and fine ambient aerosol. Inhaled particles can be translocated from the respiratory system to organs such as the liver, heart and brain. Understanding how these particles interact with the vascular endothelium, the cellular monolayer lining the inner surfaces of blood vessels, may provide insight into the mechanisms governing the role of aerosol in the development of cardiovascular disease. Results from this work were presented at AAAR's recent annual conference (B. Guo) and are submitted for publication (A Gojova et al., Environmental Health Perspectives).

Image courtesy of Bing Guo and colleagues, UC Davis.





## "In Case You Missed It"

#### **Spatial Averages May Underestimate Heath Effects**

A recent paper by Jerrett and co-workers takes advantage of the extensive Los Angeles, Calif., air quality monitoring network and the large number of local participants in a long-term American Cancer Society study to examine if intra-city pollution variability affected health outcomes. Their results suggest that ignoring small-scale gradients in PM2.5 exposure may produce significant – up to a factor of almost 3 – underestimates of chronic health impacts. (Epidemiology 2005;16: 727-736)

#### **New Jersey Voters Approve Ballot Measure to Reduce Diesel Emissions**

On Election Day, New Jersey voters approved a plan to shift tax revenue currently targeting hazardous site remediation to control of air pollution, specifically diesel vehicle emissions. By a margin of 56-44, voters approved the NJ Diesel Pollution Reduction Program, estimated to allocate \$160 million annually over 10 years to retrofit over 30,000 of the state's transit, commuter and school buses, and publicly owned trucks. (http://njpirg.org/NJ.asp?id2=20406)

#### **EPA Extends Highway Diesel Fuel Sulfur Program Retail Implementation Date**

Transition from low-sulfur diesel (LSD) fuel to ultralow sulfur diesel in the U.S. (ULSD, 15 ppm S) was pushed back by 45 days in an EPA ruling on November 8, 2005. There is no change in the June 1, 2006, start date for refineries; diesel fuel terminals and retail outlets now have until September 1 and October 15, respectively to complete full transition to ULSD. (www.epa.gov/otaq/regs/fuels/diesel/ulsd-dfrm+regs.pdf)

## CALENDAR OF EVENTS

#### March 7-9, 2006

First Radiological Device and Nuclear Event Symposium Crown Plaza Hotel, Richmond, VA www.radandnuke.com For Information, please email jroehl@scentczar.com

#### May 13-18, 2006

AIHce 2006 Co-located with VENT 2006 (May 14-16, 2006) Chicago, IL Please visit www.aiha.org/aihce.htm to submit a presentation and for detailed information

#### September 10-15, 2006

International Aerosol Conference 2006 Radisson Riverfront Hotel St. Paul, MN www.aaar.org/IAC2006/index.htm To add meetings to the AAAR Calendar of Events free of charge, please send an email to info@aaar.org, subject "AAAR Calendar of Events." In the e-mail, please include the name, dates, and location of the meeting, as well as a Web address or e-mail address where readers can request more information.

## **Welcome New Members**

#### (\* denotes a student member)

Andre Aarnink, Wageningen UR Ali I Ahu-Rahmah Desert Reseach Institute Akwete Lex Adiei, Kos Pharmaceuticals Goodarz Ahmadi, Clarkson University Christopher Allen \*, Texas A&M Katye Altieri \*, Rutgers University Igor S. Altman, Seoul National University Hey Reoun An \*, Rutgers, State University of New Jersey Bruce Anderson, NASA Langley Research Center Largus T. Angenent, Washington University in St. Louis Theresa R. Anthony, University of Arizona Michael G. Apte, Lawrence Berkeley Lab Mohammad Arhami \*, University of Southern California Christopher J. Astle, Dycor Technologies Ltd. Duncan Axisa, SOAR Soo Ya Bae \*. Ewha Woman's University Ranjit Bahadur, Scripps Institution of Oceanography Rohan S. Bakane \*, Texas A&M University, Kingsville Jamie Balarashti. Midwest Research Institute Julie Bennett \*. York University Matthew J. Berg \*, Kansas State University David Berry \*, University of Michigan Anuj Bhargava, Pratt & Whittney Shagun Bhat \*, Rice University M. Eileen Birch, NIOSH/CDC Aaron A. Boone \*, Oak Ridge Associated Universities C. Eric Boswell, National Air & Radiation Environmental Lab Maxwell Bottiger \*, AES David M. Broday, Technion IIT Sarah Brooks, Texas A&M Lauren Brothers \*, University of California, San Diego

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Wesley Bunwash \*, Carleton University
Alexandre Caboussat, University of Houston
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Janeen Casey \*, York University
Rajan K. Chakrabarty \*, Desert Research Institute
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Qing Chen \*, Stanford University
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Beverly Coleman \*, UC Berkeley
Joseph M. Conny, National Institute of Standards & Tech
Edwin Corporan, Fuels Branch (AFRL/PRTG)
Michael Corvese, Thermo Electron Corporation
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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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#### 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). 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. Sorry, we are not able to accept resumes.

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To see full descriptions of classified ads, please visit www.aaar.org/career.htm.



## International Aerosol Conference Planning in Full Swing (AAAR will turn 25!)

The 7th International Aerosol Conference will be held in St. Paul, Minn. between September 10 to 15, 2006. AAAR (www.aaar.org) will be sponsoring and hosting the Conference on behalf of the International Aerosol Research Assembly (www.iara.org). Planning for the Conference is in full swing by members of the Advisory, Organizational, and Technical Program Committees who come from AAAR, and several member nations of the IARA. The Technical Program Committee, consisting of 36 members, will soon start discussions about a Conference Technical Program that will highlight the broad spectrum of fundamentals and application areas of aerosol science and engineering. There will be tutorials on topical areas presented by noted scientists, plenary lectures, special symposia, and poster and platform sessions.



Landmark Center
Located in downtown Saint Paul.

This is a very special year for AAAR – it will mark our 25th Anniversary, and will be the 25th Annual Conference that will be organized. Hence, we hope to organize some activities that will mark the Silver Jubilee of AAAR. Please mark your calendars and look out for updated information on the AAAR Web site.

#### Key dates:

- 1. Abstracts Due: February 1, 2006
- 2. Notification to Authors: May 1, 2006
- 3. Early Bird Registration Deadline: June 15, 2006
- 4. 7<sup>th</sup> International Aerosol Conference, September 10-15, 2006

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