



NARSTO News

A North American Consortium for Atmospheric Research
in Support of Air-Quality Management

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<http://www.cgenv.com/Narsto>

Suspended Particulate Matter Assessment: Second Public Review Draft Now Available

A public, downloadable copy of NARSTO's second review draft of its Fine-Particle Assessment is now available on the NARSTO Web site (<http://www.cgenv.com/Narsto>).

This draft is currently under review by a joint Canadian-Mexican-US committee, coordinated by the Royal Society of Canada, the Mexican Red de Investigación y Desarrollo sobre Calidad del Aire en Grandes Ciudades, and the U.S. National Academy of Sciences. The Assessment's writing team intends to apply comments from this committee – as well as those from other sources – in preparation of the final Assessment Document, which is slated for completion this coming December.

This Assessment provides a sharp focus on the relevance of current particulate-matter (PM) science to policy-makers' information needs, and is intended to be a scientifically credible, comprehensive discussion of the state of scientific knowledge relating to ambient PM management. The report discusses areas where our knowledge is sufficient to address PM problems, examines the existence of significant uncertainties, and suggests scientific advances required to assist in their resolution.

The document covers meteorological and chemical processes, emission estimations, ambient measurements, source attribution, air-quality modeling, and health and visibility consequences. In addition, the report presents summary descriptions of regionally specific aspects of nine major urban and regional North American areas. The report is written from a North American perspective, keeping in mind the government, industry, and academic sectors of Canada, Mexico, and the US, and their needs in developing a common portfolio of strategic tools and scientific understanding for PM decision-making over the next few years.

Interested persons and/or organizations are encouraged to download and review this document, and send comments to NARSTO for incorporation into the final report. These comments should address both the scientific credibility and policy relevance of the

presented information. Respondents should send their comments no later than July 1 by e-mail to our Technical Editor, Betsy Owczarski (owczarsk@gte.net).

California Air Resources Board Now Supplying List-Server Resource for NARSTO Web Site Updates

The California Air Resources Board (CARB) has volunteered use of their in-house list server for notifying interested persons whenever NARSTO implements significant updates on its Web site.

Here's how it works: Whenever the Management Coordinator's office implements a significant change to the Web site, we dispatch an e-mail notification to CARB's server (whose address, by the way, is Majordomo@listserv.arb.ca.gov). In turn, the server relays that message to anyone who's on its list.

This could be you, if you so desire. Placing your e-mail address on the list (or removing it) is simple:

Log on to the computer holding your e-mail account, start your Web browser, and go to the CARB home page at <http://www.arb.ca.gov/homepage.htm>. Click the dark box to the left of the page entitled "Join E-Lists". Click there to go to the E-List page entitled "CARBIS List Server" and follow the instructions to subscribe.

The instructions are very complete and easy to do. In abbreviated form they are:

1. Send an email to: Majordomo@listserv.arb.ca.gov. Subject line is not important.
2. Type the following in the body of the message: **subscribe Narsto**
3. Send this message **with no further text in the body of the letter**. If you have an automatic address at the bottom of your email messages, this needs to be deleted. Majordomo gets confused if ancillary material appears in requests sent to him (her?).
4. You will receive an automatic message confirming that you have successfully subscribed.

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CARB List Server, Continued

At this point, you will receive list server mail any time NARSTO posts significant new information on its Web site.

Additional instructions appear for removing your name from this site if you so desire.

NARSTO wishes to thank the Air Resources Board, especially Bart Croes, Glenn Kuhn, and Bill Fell, for making this resource available and for their assistance in initializing the system.

NARSTO Executive Assembly Meeting Scheduled for April 19-20 in Washington, DC

The next Annual Meeting of the combined Executive Assembly and Executive Steering Committee (EA and ESC) is scheduled for April 29 and 30 at the White House Conference Center in Washington DC. The Annual Meeting provides NARSTO's traditional forum for its executive membership to review program progress during the past year, make and activate major programmatic policy decisions, install new officers, and provide the ESC and the Management Coordinators with guidance for the coming year's activities. As in the past, the meeting will begin at 1:00 on its first day and conclude on the afternoon of the second.

This year's theme for the progress review will be "NARSTO science contributions and their relevance to policy applications." Presentations will include overviews of the Fine-Particle Assessment, the NARSTO Model Comparison Project, key field programs (including Pacific 2001, PNW 2001, Texas 2000, and the California particulate-matter and ozone studies), selected PM Supersite results, and the new Mexican "megacities" program being launched by Luisa and Mario Molina.

Please let the Management Coordinator's office (jake@cgenv.com) know if you plan to attend. Additional information will be posted on the NARSTO Web site in the near future.

The NARSTO News is published biannually for the purpose of communicating NARSTO activities and progress to members of the extended NARSTO community. Persons wishing to comment on the newsletter or submit material for publication are invited to do so by contacting either Diane Fleshman or Jake Hales in the NARSTO Management Coordinator's office, at the following address:

NARSTO Management Coordinator's Office
12507 Eagle Reach
Pasco, WA 99301

Phone: 509/546-9542
e-mail: jake@cgenv.com

Air-Quality Monitoring and Environmental Education In Curitiba – Brazil

Editor's note: Early last spring NARSTO Management Coordinator Jake Hales travelled to São Paulo, Brazil to present findings of the NARSTO Ozone Assessment at an international meeting entitled Ozone as an Atmospheric Pollutant, hosted jointly by the São Paulo Environmental Secretariat and Latin America DuPont. During the trip Jake had the opportunity for extensive discussions with Brazilian contributors from a number of official and not-so-official organizations, and was particularly impressed with the facilities and staff at CETESB, Sao Paulo's state organization for pollution research and management. One of the people operating at a more grass-roots level in Brazil is Zíole Zanotto Malhadas, who is the coordinator for an educational effort known as ProAR. Following is a contribution from her, which provides an interesting overview of the ProAR project:

ProAR – The Air Quality of Curitiba: Evaluating & Educating is an issue-based environmental education project, whose goal is to promote environmental awareness through community participation in local air-quality monitoring efforts. In accomplishing this goal, ProAR promotes inservice and preservice teacher training on new sampling methodologies in the Federal University of Paraná and the local community, with the intent of encouraging "interdisciplinarity," activating continued downstream teaching, and catalyzing future research efforts. Quite obviously, communication is an important ProAR element.

ProAR recently received international recognition, when it was indicated as one of the most successful environmental education projects by GreenCOM and AED – Academy for Educational Development (Washington, USA) and presented in the book "What Works" edited by M. C. Monroe, 1999. In addition ProAR was selected to test the new device developed by



Vistanomics-USA (tested by GLOBE Program, NASA):- The ECO-Badge Test Card Reader, a simple and innovative sampler which will enable a more efficient reading of pollution levels.

"Health or Pollution: the choice is yours!" headlines ProAR's didactic booklet, which makes an earnest appeal for citizen responsibility regarding municipal air quality. Along with other materials this booklet supports teacher training, and facilitates the task of sharing new knowledge with students. When the pupils have gained sufficient knowledge concerning air pollutants and their effects on the environment and human health, they are ready to cooperate in the ProAR's research phase, performed in each school during 4 weeks in August. This includes monitoring concentration levels of ozone, suspended particulate matter (PM), and acid rain, making use of simple devices, like the ECO-Badge ozone monitor (produced by Vistanomics, CA., USA) as well as some alternative methodologies to evaluate rain acidity and PM effects on plants (bioindicators).

Communication strategies activate ProAR's extension phase, when the young students become "teachers" of their parents, relatives and neighbors, and multiply their knowledge and awareness, taking home a leaflet with some instructions on "*what to do in order to reduce pollution*", as well as some didactic texts and the drawings they have produced.

ProAR activities started in 1995, with the testing of proposed research and education methodologies. During this initial period, sampling devices were installed in 40 residences of selected University students. During the subsequent year the project was expanded through a partnership with the Municipal Secretary of Education, which allowed ProAR to work with 46 teachers in 30 elementary schools. The process was repeated in 1997 with the cooperation of 54 teachers, where the communication process was duplicated. This involved about 12,000 students, who were eager to disseminate the new knowledge and the results of their research. This confirmed an initial ProAR hypothesis:- significant air-pollution levels are common in Curitiba!

In 1998 ProAR was invited to develop a similar project by the Secretary for the Environment of São Paulo, the largest and most polluted urban centre of South America. Here 96 teachers were trained to educate and promote air-quality awareness among some 6,500 pupils.

In terms of communication, the greatest moment was also in 1998, when the "ProAR" was indicated as a successful Environmental Education project by the National Coordination for Environmental Education of the Ministry of Education (Brasilia) and presented by TV network in a national Teleconference to most Brazilian schools.

In 1999, the ProAR team trained 105 inservice and preservice teachers, with the cooperation of specialists

in chemistry (Dr. Orliney Guimarães) and Botany (Dr. Yedo Alquini). During this year ProAR expanded its communication to reach 40,000 students, who acquired and transmitted the program's information content and transmitted this material to their families, ultimately promoting air-quality awareness for at least 120,000 people. The multiplying effect increased somewhat in 2000. In 2001, in spite of the lack of financial resources, ProAR is training 118 elementary school teachers and 32 undergraduate students of the Federal University of Paraná, and its research kits are being placed in 34 schools.

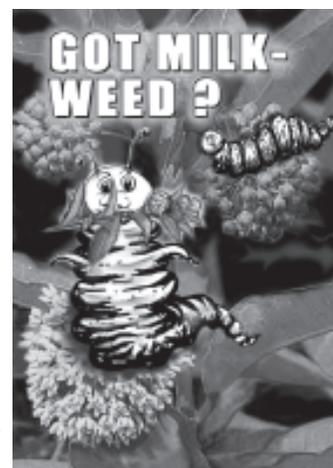
Further information on ProAR can be obtained by contacting Dr. Malhadas at:
ziolezm@cwb.matrix.com.br

Got Milkweed?

Last fall a number of scientists from throughout the United States met in Raleigh, NC to address the question:

"Got milkweed?"

That question was posed on behalf of the monarch butterfly. Milkweed is critical to the monarch for completion of its life history.



Why should all this be significant to NARSTO? . . . Because milkweed is sensitive to ozone.

At the two-day meeting, hosted by the U.S. EPA's National Center for Environmental Assessment in Research Triangle Park, NC, plant pathologists and physiologists, biochemists, atmospheric chemists, and entomologists discussed how ozone may be affecting the interaction between the milkweed plant and the monarch butterfly.

The monarch has an eastern and western migratory route. Along both migratory corridors various species of milkweed are relied upon by the feeding butterfly's larval stage for nutrition. Ozone has been shown to alter the nutritional quality of milkweed and many other plants at concentrations commonly found in ambient air. The scientists plan to develop a synthesis paper that will be available in early 2002. The scientists also took steps towards developing an integrated monitoring network across the U.S. that will begin to provide data on the potential impacts of ozone on the milkweed plant, the insect, and the interactions between the two. For more information on the meeting and other products please contact Dr. Tim Lewis at 919-541-0673 or lewis.timothy@epa.gov.



NARSTO Welcomes New Members

Several new members have joined NARSTO during the past year, and we would like to provide these organizations with a special welcome in this edition of the **NARSTO News**. These include:

- ARGONNE NATIONAL LABORATORY
- BRITISH COLUMBIA MINISTRY OF WATER, LAND AND AIR PROTECTION
- CALIFORNIA ENERGY COMMISSION
- ONTARIO POWER GENERATION
- NORTH AMERICAN COMMISSION FOR ENVIRONMENTAL COOPERATION

- PACIFIC NORTHWEST NATIONAL LABORATORY
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- UNITED STATES-MEXICO FOUNDATION FOR SCIENCE (FUNDACION MEXICO- ESTADOS UNIDOS PARA LA CIENCIA, A. C. "FUMEC")
- UNIVERSITY OF TEXAS

We're looking forward to working with these groups as NARSTO continues its mission.

Organizations interested in joining NARSTO can request further information by contacting the Management coordinator's office at jake@cgenc.com. A current listing of NARSTO's complete membership appears below.

NARSTO MEMBERSHIP: 2002

NARSTO PARTICIPATING PARTNERS

- ARGONNE NATIONAL LABORATORY
- ATMOSPHERIC AND ENVIRONMENTAL RESEARCH, INC.
- ATMOSPHERIC RESEARCH AND ANALYSIS, INC.
- COMMONWEALTH EDISON
- GEORGIA INSTITUTE OF TECHNOLOGY
- LAMAR UNIVERSITY, GULF COAST HAZARDOUS SUBSTANCE RESEARCH CENTER
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY
- MICROELECTRONICS CENTER OF NORTH CAROLINA
- MIDWEST RESEARCH INSTITUTE
- NEW ENGLAND ELECTRIC SYSTEM
- NORTH CAROLINA STATE UNIVERSITY
- PACIFIC NORTHWEST NATIONAL LABORATORY
- PENNSYLVANIA STATE UNIVERSITY
- POTOMAC ELECTRIC POWER COMPANY
- RADTECH INTERNATIONAL NORTH AMERICA
- RESEARCH TRIANGLE INSTITUTE
- SASKATCHEWAN RESEARCH COUNCIL
- SONOMA TECHNOLOGY, INC.
- SOUTHERN OXIDANTS STUDY
- STATE UNIVERSITY OF NEW YORK (ATMOSPHERIC SCIENCE RESEARCH CENTER, ALBANY)
- STATE UNIVERSITY OF NEW YORK (COLLEGE OF ENVIRONMENTAL SCIENCE & FORESTRY, SYRACUSE)
- UNIVERSITY OF ALABAMA, HUNTSVILLE
- UNIVERSITY OF CALIFORNIA, IRVINE
- * UNIVERSITY OF CALIFORNIA, RIVERSIDE
- UNIVERSITY OF MARYLAND
- UNIVERSITY OF MIAMI
- UNIVERSITY OF MICHIGAN
- UMDNJ - ROBERT WOOD JOHNSON MEDICAL CENTER
- UNITED STATES-MEXICO FOUNDATION FOR SCIENCE (FUNDACION MEXICO- ESTADOS UNIDOS PARA LA CIENCIA, A. C. "FUMEC")
- U.S. CONGRESS HOUSE ENERGY & ENVIRONMENT SUBCOMMITTEE

NARSTO AFFILIATED PARTNERS

- EUROTRAC - 2
- INTERNATIONAL GLOBAL ATMOSPHERIC CHEMISTRY PROGRAM



NARSTO SPONSORING PARTNERS

Governmental

- BRITISH COLUMBIA MINISTRY OF WATER, LAND AND AIR PROTECTION
- CALIFORNIA AIR RESOURCES BOARD
- CALIFORNIA ENERGY COMMISSION
- COMMONWEALTH OF PENNSYLVANIA
- DEPARTMENT OF AGRICULTURE
- DEPARTMENT OF ENERGY (NATIONAL ENERGY TECHNOLOGY LAB)
- DEPARTMENT OF ENERGY (OFFICE OF SCIENCE)
- DEPARTMENT OF INTERIOR
- DEPARTMENT OF TRANSPORTATION
- ENVIRONMENT CANADA (METEOROLOGICAL SERVICE OF CANADA)
- ENVIRONMENTAL PROTECTION AGENCY (ORD)
- ENVIRONMENTAL PROTECTION AGENCY (OAR)
- INSTITUTO MEXICO del PETROLEO
- INSTITUTO NACIONAL de ECOLOGIA
- LAKE MICHIGAN AIR DIRECTORS CONSORTIUM
- LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY
- MARYLAND DEPARTMENT OF THE ENVIRONMENT
- MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
- MIDATLANTIC REGIONAL AIR MANAGEMENT ASSOCIATION (MARAMA)
- NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
- NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
- NATIONAL OCEANOGRAPHIC & ATMOSPHERIC ADMINISTRATION (AERONOMY LABORATORY)
- NATIONAL RENEWABLE ENERGY LABORATORY
- NATIONAL SCIENCE FOUNDATION
- NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION & ENERGY
- NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- NEW YORK STATE ENERGY RESEARCH & DEVELOPMENT AUTHORITY
- NORTH AMERICAN COMMISSION FOR ENVIRONMENTAL COOPERATION
- NORTHEAST STATES FOR COORDINATED AIR USE MANAGEMENT (NESCAUM)
- ONTARIO MINISTRY OF THE ENVIRONMENT
- SOUTH COAST AIR-QUALITY MANAGEMENT DISTRICT
- TENNESSEE VALLEY AUTHORITY
- TEXAS NATURAL RESOURCES CONSERVATION COMMISSION

Industrial

- AMERICAN PETROLEUM INSTITUTE
- CONECTIV
- CONSTELLATION ENERGY
- CONSUMER SPECIALTY PRODUCTS ASSOCIATION
- COORDINATING RESEARCH COUNCIL
- DUNN-EDWARDS CORPORATION
- EASTMAN KODAK COMPANY
- EDISON ELECTRIC INSTITUTE
- E.I. DUPONT de NEMOURS & COMPANY
- EPRI
- EXELON CORPORATION
- FIRST ENERGY CORPORATION
- FORD MOTOR COMPANY
- GENERAL MOTORS CORPORATION
- LYONDELL CHEMICAL COMPANY
- NEW YORK STATE ELECTRIC & GAS CORPORATION
- NORTHEAST UTILITIES SERVICE COMPANY
- NORTHERN INDIANA PUBLIC SERVICE
- ONTARIO POWER GENERATION
- PENRECO
- PPL CORPORATION
- PINNACLE WEST
- PUBLIC SERVICE ENTERPRISE GROUP
- SOUTHERN COMPANY
- XCEL