

National Atmospheric Deposition Program (IR-7)
Technical Committee Meeting
Provincetown, Massachusetts
October 24-28, 1989

Minutes

Tuesday, October 24, 1989

Opening

Chairman, Steve Lindberg, convened the opening session of the 1989 NADP (IR-7) Technical Committee Meeting in Provincetown, Massachusetts. Steve expressed thanks to Alan VanArsdale for his work in organizing this year's meeting.

Alan welcomed participants and provided a brief history of Cape Cod. The focus of this meeting will be changes for the future. He discussed the meeting agenda and announced that the discussion session on future monitoring efforts had been moved from Wednesday evening to Thursday morning.

Participants were asked to introduce themselves (see attached list). Steve announced that Keith Huston had recently retired.

Coordination Office Report -

Carol Simmons, Acting Coordinator, reported. There are currently 198 active sites in the U.S. and one in Canada; plus, five sites have collocated samplers. One site in Illinois closed in the past year and was replaced with an alternate location - IL99 Omega. A new site in Washington is also under discussion. She described the condition of the Puerto Rico site (PR20 El Verde) as a result of the recent hurricane.

Improvement efforts have included:

1. Reduce rate of sample invalidation.
 - A. Increase awareness of reasons for samples being invalidated.
 - B. Work with site operators to make them more aware.

The Coordination Office initiated a report, sent to sites every six months, which explicitly covers the reasons for invalid samples. Displayed a graph depicting positive effects from these efforts.

2. Provision of data in more user-friendly formats.
 - A. Data on diskettes.
 - B. Transfer by electronic mail.
 - C. Developed new fields in the data base. Displayed a sample page reflecting those new fields.
3. Documentation of Program.
 - A. Site information.
 - B. Procedures.
 - C. Applications of data.

A map showing those sites (151) which met completeness criteria for the 1988 Annual Summary was displayed.

Carol also displayed a graph depicting growth in requests for data other than published reports, and provided a summary of data requests by types of user. Uses include supplementing data from state and regional networks, comparisons with data collected by other networks, nutrient budgets, input to simulation models, comparison with surface water chemistry, assessment of deposition in or near wilderness areas, environmental impact studies, and depth to which hazardous waste would be transported by precipitation.

Steve Lindberg presented results of a questionnaire on site activities which have been received to date and asked that outstanding questionnaires be returned. Products include publications directly utilizing NADP data, such as numerous journal articles, open literature, etc. Another product is the training of individuals who operate the sites. The questionnaire also provided an interesting history of natural disasters involving NADP/NTN sites.

Nominating Committee -

Steve Lindberg asked Wayne Banwart, Jim Gibson, Roald Lund, and Jack Pickering to serve as a nominating committee to select a candidate for Secretary of the IR-7 Technical Committee.

Subcommittee Agendas -

Network Operations -

Scotty Dossett announced that there is a special issue to be resolved by both the Network Operations subcommittee and the Data Management subcommittee. Therefore, the two subcommittees will meet jointly to deal with the issue of data from the second laboratory and consider recommendations for handling of that data.

Data Management -

Warren Knapp also mentioned the joint meeting with Network Operations. In addition, the Data Management subcommittee will consider the definition of summary for non-standard sample periods and a recommendation concerning network handling of trace samples.

Effects Research -

Alan VanArsdale commented that the Effects subcommittee will discuss:

1. Recommendations to CSRS Competitive Grants Program.
2. Changes in areas of research.
3. Change in focus.
4. Discuss other areas of monitoring from an effects point of view.
5. Elect new officers.

Alan also mentioned that last year the field and horticultural crops, forestry, and aquatics working groups were merged to gain a broader perspective.

Training Film

Carol Simmons mentioned the Site Operator Training Film which was completed and distributed mid-summer. The film can be viewed at any time during the poster session or during breaks.

The opening session was adjourned for subcommittee meetings.

Invited Speakers

Dr. Robert Talbot, University of New Hampshire - "Stratospheric Chemistry of North America and Arctic."

Dr. James Mahoney, National Acid Precipitation Assessment Program - "Post NAPAP Research."

Contributed Papers on Effects and Long Term Research -

"Hydrologic Control of Sulfate Mobility in a Forested Watershed" - J. Lynch, The Pennsylvania State University.

"Atmospheric Chemistry and Deposition of Nitrogen Compounds During the Growing Season in Conifer Forests in the United States and West Germany" - S. Lindberg, Oak Ridge National Laboratory.

Poster Introductions and Presentations -

(Abstracts are available by contacting Linda Bandhauer in the NADP/NTN Coordination Office.)

"Comparison of Chemistry for NADP, Bulk Precipitation, and Wet Plus Dry Collectors in the Southern Appalachians Using Different Collection Methods" - J. Padgham, U.S. Forest Service.

"Contribution of Local Sources to the Acidity of Rain in an Urban Area" - H. Feely, U.S. Department of Energy.

"A Comparison of Intra-storm Variations in Chemical and Isotopic Composition of Rainfall in the Georgia Piedmont" - J. Shanley, U.S. Geological Survey.

"Exposure to Combination of UV-B and Ozone Reduces Pollen Tube Growth Rate More Than Exposure to Either Stress Alone" - W. Feder, University of Massachusetts.

"Rainfall Monitoring at the University of Central Florida and the John F. Kennedy Space Center, Florida for the Period of 1978-1987" - L. Maull, The Bionetics Corporation.

"Comparison of Precipitation Measurement from Co-located Nipher-shielded and Standard NADP/NTN Raingages - Preliminary Results" - D. Bigelow, Colorado State University.

"Paired Sampler Comparisons in the APIOS Daily Wet Deposition Network" - D. Orr, Ontario Ministry of the Environment.

"The Contribution of Bucket O-Rings to Sample Chemistry" - K. James, Illinois State Water Survey.

"An Intercomparison of Two NOAA NADP Stations in Central Mississippi" - G. Rolph, National Oceanic and Atmospheric Administration.

"Summary of the Intersite-Comparison Program of the National Atmospheric Deposition Program/National Trends Network, November 1978-May 1989" - J. Gordon, U.S. Geological Survey.

"Summary of Interlaboratory Comparison Program Operated by the U.S. Geological Survey for the National Atmospheric Deposition Program/National Trends Network, 1983-88" - T. Willoughby, U.S. Geological Survey.

"Nutrient Trends in Atmospheric Loadings to the Great Lakes: 1982-1986" - E. Klappenbach, U.S. Environmental Protection Agency.

"Air Pollution in the Wind River Mountain Wilderness: A Longterm Monitoring Program of the Forest Service, U.S. Department of Agriculture" - A. Galbraith, U.S. Forest Service

"A Preliminary Estimate of Precision Determined With Collocated Samplers for the National Atmospheric Deposition Program/National Trends Network" - T. Willoughby for R. See, U.S. Geological Survey.

“Effect of Daily Exposure During Pollination on Acid-Rain X Drought Stress Interaction” -
W. Banwart, University of Illinois

Wednesday, October 25, 1989

Contributed Papers on Effects

- “The Effects of a Single Acidic Cloud Episode on Red Spruce Located on Mount Moosilauke, NH.” - B. N. Rock, University of New Hampshire.
- “Do Controlled Experiments with Seedlings Support or Contradict the Hypothesis That Acidic Cloudwater Contributes to the Decline of Red Spruce?” - J. Jacobson, Boyce Thompson Institute.
- “Response of Shortleaf Pine to Acid Rain and Ozone.” - R. Flagler, Texas A & M University.
- “Monitoring: The Balance Between Ambient Air Quality Monitoring and Effects Monitoring for the National Forests.” - K. McLaughlin, U.S. Forest Service.

Invited Speakers

- Dr. Jeff Gaffney, Argonne National Laboratory - “Atmospheric Organic Global Chemistry.”
- Dr. James Gibson, Colorado State University (on leave to Environmental Protection Agency) - “Global Chemistry Monitoring Needs for the 1990s.”

Contributed Papers on Monitoring

- “Na/Cl Ratios in Rain Across the USA, 1982-1986” - K. Steele, University of Arkansas.
- “Questionable Values Should be Edited from NADP Data Sets!” - C.W. Martin, USDA Forest Service.
- “Wet and Dry Deposition Results from Minnesota’s Monitoring Network” - C. Malave, MN Pollution Control Agency.
- “A Comparison of NADP and CARB Wet Deposition Measurements in California” - J. Horrocks, California Air Resources Board.
- “A Comparison of Daily Gage Catch in Alter and Nipher Shielded Belfort Rain Gages as a Function of Precipitation Type and Wind Speed” - J. Baron, National Park Service.
- “What We Have Learned About the Differences in Daily or Event Samples and Weekly NADP/NTN Samples - The State of Science 1989” - V. Bowersox, Illinois State Water Survey.

Thursday, October 28, 1989

Contributed Paper on Effects and Long Term Research

- “The EPRI Research Program on Green-house Gases and Climate Change” - C. Hakkarinen, Electric Power Research Institute.

Group Session - Future Directions for NADP/NTN

Agenda for this session will include:

1. Agency letters.
2. USDA Initiative - UV-B.

3. J. Mahoney's comments.
4. Status of European and Canadian networks.
5. Executive Committee 'Brainstorming Session.'
6. *Ad hoc* committee on the future role of NADP/NTN (Expanded to include members of all subcommittees, the CAL and the Coordination Office.)
7. Results.
8. Group Feedback.

Steve Lindberg opened this informal discussion session by reading responses received to letters sent last year to agency representatives regarding the future of NADP. All seemed to support continuation of the program, at least in concept.

Jack Barnes commented on two new initiatives from the past year.

1. Under global change, the Committee on Earth Sciences of the Federal government asked agencies to develop plans and budgets for the next ten-year period. USDA asked for an assessment of UV-B, and a conference was held addressing the question of responses of crop systems and needs for monitoring. An assessment paper was written and NADP/NTN has been suggested for consideration, since it is in existence, as a base for UV-B monitoring. Many aspects yet remain for consideration, but Jack wanted the NADP/NTN group to know that they had been asked and suggested that a response should be considered. A pilot-type study will be conducted to develop instrumentation and procedures.
2. Report which recommends that new dollars be added to Competitive Grants Program for its expansion into major new areas. This includes not only basic research but contemporary, multipolicy research in applied areas. These would be strengthening-type grants. Suggested that "Where you come to the fork in the road, take it." The dichotomy is to maintain what NADP does well and expanding into new horizons.

Thrust in European networks is to expand in space rather than direction, and their growth is up rather than down. Canadian networks are in the same position as U.S., looking at potential reductions in the numbers of networks and possibly expanding into new measurements.

Results-A site survey questionnaire asking for an indication of other studies being conducted at NADP/NTN sites, was mailed and ~40% have replied to date. Responses reflect that site uses include deposition studies; air toxic studies, both metals and organics; and forest throughfall studies.

Ad Hoc Committee status - The *ad hoc* committee on new initiatives will be led by the Technical Committee chairman. Several "white papers" will be written. These include a prospectus on the philosophy of change, possibilities or approach to expansion of the network, needs for monitoring from an effects perspective, and small-scale deposition measurement of materials in the network. A proposal will also be developed.

"Your feedback" - Steve asked for questions, and opened the floor for discussion. It was suggested that the general membership should be updated more often than once a year, and that perhaps copies of action items which take place during the year should be distributed to the Technical Committee membership, or, at least, to all sites.

Business Meeting -

New Chairman of Administrative Advisors -

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Jim Davidson, University of Florida, has been asked to assume the responsibility of Chairman of the Administrative Advisors. A formal letter of invitation will be sent to Jim for his acceptance. A fourth advisor will also be selected. NOTE: C. R. Frink, Agricultural Experiment Station, New Haven, Connecticut, has subsequently been named.

Training Film -

The training film is finished and has been distributed to all site supervisors. Thanks were expressed to those who worked on the film. Star of the film was Stephen Scott from the U.S. Military Academy; Joel Frisch of USGS was sponsor.

1990 Meeting -

The 1990 meeting will be held in San Antonio, Texas, the week of October 29. The 1991 meeting will be held in Pennsylvania, probably in Philadelphia. Suggestions are now being accepted for location of the 1992 meeting.

Annual Report for CSRS -

A request for information to be included in this report will be mailed out within the next few months.

Report from Nominating Committee -

Jim Gibson reported that the nominating committee was charged with selecting a candidate for the position of Secretary of the Technical Committee. This person would then advance to the roles of Vice Chairman and Chairman. Elon S. 'Sandy' Verry of the U.S. Forest Service is being recommended for consideration. The floor was opened for other nominations; there were none. Sandy Verry was unanimously elected Secretary of the NADP/NTN Technical Committee for 1989-90.

Special Resolutions -

Bill McFee commented that there is an obvious need to take the fork in the road and consider new areas. It was proposed that two resolutions be adopted which could be used for 1) admission of new sites and 2) to reflect interest in moving into new areas of research and monitoring. The proposed resolutions are as follows.

Resolution Number One

Resolve that NADP demonstrate a willingness to consider the addition of new sites which meet sound scientific needs, even those that may not meet current NADP/NTN regional representativeness criteria.

Resolution Number Two

Resolve that NADP (IR-7) is dedicated to research and monitoring of chemicals and other atmospheric variables which are important in describing the physical and chemical environments.

The resolutions were discussed. They are primarily for the NADP/NTN group and will be reflected in the minutes. Adoption of these resolutions will permit additional steps toward expansion and new directions.

Motion: The first resolution was unanimously endorsed.

Motion: That the second resolution be accepted. Motion carried.

Subcommittee Reports

Network Operations -

Scotty Dossett reported that the subcommittee considered the following topics.

1. Non-Standard sites for extra analysis - Scotty pointed out that a resolution was voted on the floor in the previous action which accepted this idea. He mentioned that there are resource considerations at the CAL. They are working with a maximum number of sites, at this time, of 210 due to manpower and processing constraints. The subcommittee did agree, with acceptance of the Simmons' "white paper" on admission of non-standard sites, that it wants to try to implement these new directions.
2. The CAL has undergone a change in the analytical method for ammonium, and a comparability report was presented. The subcommittee approved that final report and recommended approval of this change by the Technical Committee.

Motion: That the implemented change in analytical method for ammonium be accepted. Seconded and carried.

3. Action on David S. Bigelow's report and recommendations regarding handling of National Park Service data from the second lab, and approval for Coordination Office to handle this data in the recommended manner; i.e., that the field data will be included in the NADP/NTN data base and that the second-laboratory data will be available only upon special request. It was the recommendation of both the Network Operations subcommittee and the Data Management subcommittee that these recommendations be accepted.

Motion: That the report and recommendations for handling of data generated for National Park Service by the second laboratory be accepted. Seconded and carried.

4. Analytical comparability procedure - There was no plan in position for evaluating an analytical change at the time the decision was made to change the ammonium procedure. An analytical method comparability procedure has subsequently been developed, and the subcommittee recommends acceptance of this procedure.

Motion: That analytical method comparability, procedure be accepted. Seconded and carried

5. NADP has received a special, joint request by USGS, USDA, and EPA to investigate herbicide concentrations in ambient rainfall. They want to take a subsample of the contents of wet bucket, after the CAL has completed initial processing and before the sample is filtered. This sample would then be packaged and shipped to a USGS facility for analysis. This would not interfere with normal network analysis. The subcommittee developed a resolution which reads

"The Subcommittee on Network Operations approved the support of this use, contingent upon formulation of an acceptable work plan by USGS, the CAL and Coordination Office representatives, as that plan goes forth."

Motion: That the subcommittee resolution to approve the herbicide study, contingent upon formulation of an acceptable work plan, be accepted. Following discussion, the resolution was accepted. Any costs involved will be worked out between the CAL and USGS.

6. 1989-90 Officers:

Chairman - Cary Eaton
Vice Chairman - Ed Klappenbach
Secretary - Lois West

Data Management Subcommittee -

Warren Knapp reported

1. Subcommittee voted acceptance of Dave Bigelow's report regarding second lab data inclusion in the NADP/NTN database.
2. As a result of the interim meeting in April, the Coordination Office is adding several new fields in the NADP/NTN database which makes the data more useable; i.e., information regarding number of days in the sample period, new set of validation and invalidation codes, month and year that includes the sample for purposes of formulating a summary (each week will be assigned a week and year) will be included.
3. Recommended adoption of a proposal to introduce an alternative to semiannual data reports and to distribute data on low-density diskettes. Carol Simmons displayed examples of site-specific hard reports which will be included and points illustrating justification for discontinuing publication of semiannual reports.
 - The old reports were cumbersome to use and space consuming.
 - Information in older volumes may be out of date.
 - Not requested by data users when it is available on diskettes.
 - No room on page for new, useful fields on the present format.
 - Question of resource allocation in the Coordination Office. Time can be spent developing products which are more useful.

Concerns are:

- Availability of data for ready reference both by sites and other data users.
- Product reporting effort and involvement of sites in the program. At the present time, annual reports do not include all the sites in the network.
- Provides some visibility to the program.

The proposed change will semiannually provide sites:

- A hard copy report (initially, all data since site inception).
- An official NADP/NTN notebook in which to store the data.
- Notify sites and other data users of availability of data on diskettes.
- Provide diskettes of weekly data for a given year or for a limited number of sites for all years, at no charge.
- Give data users the option of receiving diskettes of all weekly data from the entire network for one year at no charge.

The annual summary report would be expanded to include all sites, regardless of whether or not they meet the completeness criteria, but would in some way identify those sites that did not meet completeness criteria.

Motion: That recommendation be accepted. Recommendation was accepted.

4. Voted to adopt two proposals concerning handling of low volume, trace samples.
 - 1) That field procedures for site operators remain unchanged, but that they be allowed to use all means available to them to estimate the occurrence of and amount of volume associated with daily or weekly trace amounts of liquid sample.
 - 2) For all samples of less than 70 grams bucket volume and less than 0.05 inches of precipitation on the Belfort rain gauge chart, sampler bucket volume should be used as the official weekly precipitation amount for purposes of data summaries that span multiple NADP/NTN sampling weeks.
5. The subcommittee voted to recommend a new procedure for assigning monthly summary intervals for long-duration samples. Recommends that if the sampling time in a monthly summary period is less than 21 or more than 35 days, based on the available samples for the period, no summary data be produced for that month.
6. An *ad hoc* committee was appointed to develop a bibliography of written material pertaining to procedures and practices; i.e., USGS documentation of Quality Assurance, etc. Dave Bigelow and Wayne Martin will serve on the committee.
7. 1989-90 Officers:
 - Chairman - James A. Lynch
 - Vice Chairman - Herb Feely

Effects Research

Effects Research subcommittee chairman, Alan VanArsdale, reported.

1. Pollutants to be monitored - Subcommittee has in the past raised their voice regarding pollutants to be monitored, but will do so much more prominently in the future. Discussed a wide variety of pollutants; recommendations seem to be on target.
2. Recommendations for research directions for the 1990 CSRS competitive grants program will be forwarded to Jack Barnes.
3. Memo to Network Operations subcommittee regarding monitoring. A memo (see attached) will be directed to Cary Eaton, Chairman of Network Operations, outlining the categories of pollutants which the effects people feel are most important to monitor and indicating an interest on the part of the Effects subcommittee in working with the Network Operations subcommittee to determine how these pollutants might be monitored by NADP.
4. Will assist the Coordination Office in obtaining additional information from sites regarding how and what and where additional pollutants may be monitored, now or in the future.
5. 1989-90 Officers:
 - Chairman - Walter W. Heck
 - Vice Chairman - Jerry Walker

A resolution from the effects subcommittee (without their passage) was read to the Technical Committee.

"The Effects Subcommittee of the NADP recognizes and applauds current and past NADP program efforts to monitor and measure the chemical constituents of precipitation.

The Subcommittee also recognizes that there is a clear need, from an effects standpoint, to systematically monitor and measure additional atmospheric pollutants.

These pollutants can be grouped into the broad categories of ambient pollutants (both particulate and gaseous phases); toxic organic compounds and toxic trace dernements, and biologically active climatic factors.

*The members of the Effects Subcommittee therefore strongly recommend that the NADP proceed expeditiously to develop program resources to systematically monitor and measure specific pollutants from these broad categories and consider how subnetworks within the existing NADP monitoring network should be **established to measure these pollutants.***

Motion: For acceptance of this resolution by the Technical Committee was made and seconded.

There was discussion regarding the text of the resolution and possible redundancy with earlier resolutions. This resolution is being put forth in an effort to make an issue of the fact that the effects group is assuming a more active role in NADP. Question was called, and the resolution from the Effects Subcommittee was accepted.

Hope was expressed that the Effects subcommittee might meet over the coming year, perhaps at the interim meeting.

Quality Assurance Steering Committee -

Don Bogen reported on two items.

1. Status of the Quality Assurance Plan for NADP/NTN – Chapters one and three are done, two and four are in final draft and comments have been received. All four chapters will go to editor by January 1, 1990 for integration and formatting and will then be available for review and comment.
2. Gerald M. Aubertin, Southern Illinois University, is the newly appointed chairman of the QA Steering Committee.

Closing -

A number of 'special' awards were announced. Thanks were expressed to Alan VanArsdale and Doug Sisterson for their efforts in putting the meeting together, and to Carol Simmons as Acting Coordinator for the past year.

The "gavel" was passed to Doug Sisterson, incoming Chairman. Doug reminded everyone of the symposium on Trend Analysis of Wet Deposition Data scheduled to begin after lunch and continue until noon on Friday.

The 1989 NADP Technical Committee Meeting was adjourned.

Participant List

<u>Name</u>	<u>Affiliation</u>
Linda Bandhauer	NADP/NTN Coordination Office
Jack Barnes	USDA Cooperative State Research Service
Jill Baron	National Park Service
Carmen Benkovitz	Brookhaven National Laboratory
David Bigelow	NADP/NTN Coordination Office
Rick Bilonick	Consolidation Coal Company
Donald Bogen	U.S. Department of Energy
Van Bowersox	Illinois State Water Survey
Richard Cline	USDA Forest Service
Craig Eberhart	Los Alamos National Laboratory
Herb Feely	U.S. Department of Energy/EML
Jeffrey Gaffney	Argonne National Laboratory
James Gibson	NADP/NTN Coordination Office
John Gordon	U.S. Geological Survey
Jeffrey Grimm	Penn State University
Charles Hakkarinen	Electric Power Research Institute
Robert Hirsch	U.S. Geological Survey
David Holland	U.S. Environmental Protection Agency
Rick Hooper	U.S. Geological Survey - WRD
Paul Kapinos	U.S. Geological Survey
Edward Klappenbach	U.S. Environmental Protection Agency
Dennis Lamb	Penn State University
Ming-Chung Lin	SUNY-Syracuse
Steven Lindberg	Oak Ridge National Laboratory
Bernard Malo	U.S. Geological Survey
N. A. Marley	Argonne National Laboratory
Keith McLaughlin	U.S. Forest Service
Daniel McNaughton	ENSR Consulting & Engineering
Stu McNair	Environment Canada
Gary Oehlert	University of Minnesota
Anthony Olsen	Pacific Northwest Laboratory
Cynthia Olsson	NADP/NTN Coordination Office
Dan Orr	Ontario Ministry of the Environment
William Parkhurst	Tennessee Valley Authority
Jack Pickering	U.S. Geological Survey
Glenn Rolph	NOAA - Air Resources Lab
Cari Sasser-Furiness	North Carolina State University
Carol Simmons	NADP/NTN Coordination Office
Jeanne Simpson	Pacific Northwest Laboratory
Douglas Sisterson	Argonne National Laboratory
Luther Smith	NSI Environmental Services
Kenneth Steele	Arkansas Water Resources Research Center
Alan VanArsdale	Massachusetts Division of Air Quality
Sandy Verry	USDA Forest Service
Robert Vet	Atmospheric Environment Service
Jerry Walker	University of Georgia
James Watkins	National Park Service
Lois West	Louisiana State University