INTERAGENCY MONITORING OF PROTECTED VISUAL ENVIRONMENTS

IMPROVE

Volume 1, No. 4 **Summer 1992** **October 15, 1992**

IMPROVE MONITORING UPDATE

Preliminary data collection statistics for the Summer 1992 monitoring season (June - August 1992) are:

Data Type	Collection Percentage
Aerosol Data	95.0%
Optical (transmissometer) Data	86.9%
Scene (photographic) Data	80.8%

Figure 1 is a map of the current IMPROVE and IMPROVE Protocol sites. Changes to the network during the last three months included installation of a transmissometer system at Great Basin National Park and the termination of photographic monitoring at two BLM sites--Green River and Kemmerer Resource Areas.

Reprocessing of all transmissometer optical data from Spring 1991 through Winter 1991-92 is underway to incorporate pre- and post-calibration values for final lamp drift corrections. A final data report will be completed by mid-November. Spring and Summer 1992 preliminary optical data reports will be available by the end of the year. Aerosol data analysis for the Spring 1992 season is complete and analysis for the Summer 1992 season is underway.

Hurricane Andrew passed directly over the aerosol monitoring site at Everglades National Park. Although struck by a passing shed, the sampler remained standing and operational. Some samples were lost due to power outages.

The NPS, Air Quality Division, has compiled a comprehensive report that presents all IMPROVE data collected between Spring 1988 and Winter 1990-1991. A draft of the report will soon be distributed for external review, and the final report is scheduled for completion by the end of the year. Highlights from the report will be featured in the next *IMPROVE Newsletter*.

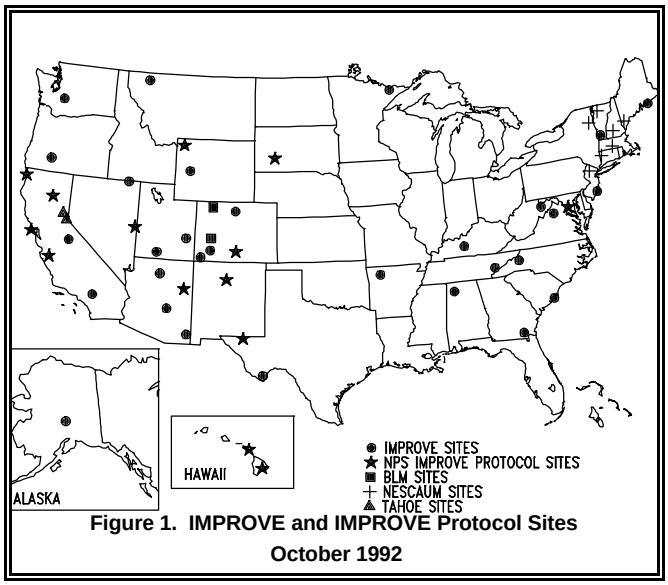

Figure 1. IMPROVE and IMPROVE Protocol Sites
October 1992

Special Studies Update

PROJECT MOHAVE

The MOHAVE summer intensive field monitoring program was successfully completed on September 3, 1992. All monitoring components of Project MOHAVE are now complete with the exception of background tracer monitoring that will continue at several sites through November. Samples and data collected during the summer intensive are now being analyzed and compiled. Data collected during the winter intensive now reside in the Project MOHAVE database.

INTERNATIONAL CONFERENCE ON VISIBILITY AND FINE PARTICLES VIENNA, AUSTRIA SEPTEMBER 1992

An international conference on Visibility and Fine Particles was held at the University of Vienna from September 15 to 18, 1992. The conference was attended by 94 researchers from 22 countries. 96 papers covering all aspects of visual air quality were presented. The countries with the largest number of participants were: USA (27), Germany (13), Russia (11), Austria (10), and Italy (5). The remainder of the attendees were from Europe, South America, and China. A strong interest in American visibility programs was expressed by all participants especially by researchers from Eastern European countries. Clearly the USA is the world leader in visibility measurement techniques, data analysis, modeling, and environmental protection laws. The IMPROVE program was well represented. The following papers, based on IMPROVE measurements, analyses, and research, were presented:

"Two New Rotating-Drum Impactors For Visibility Studies: SMART and the IMPROVE Drum", Thomas A. Cahill et al. , University of California - Davis.

"Trends in Fine Particle Concentrations at Remote Sites In The United States" Robert A. Eldred and Thomas A. Cahill, University of California - Davis.

VIENNA CONFERENCE PAPERS ***continued on page 3***

Feature Article

GRAND CANYON VISIBILITY TRANSPORT COMMISSION

INTRODUCTION

As authorized by Clean Air Act Amendments of 1990, the Grand Canyon Visibility Transport Commission will assess scientific and technical data, studies, and other information regarding adverse visibility impacts in the Golden Circle of Class I national parks and wildernesses on the Colorado Plateau. By November 1995, the Commission will present its recommendations to the Administrator of Environmental Protection Agency (EPA) regarding what measures, if any, should be taken to remedy such impacts.

BACKGROUND

Section 169B(f) of the Clean Air Act (CAA) states that the EPA must establish a visibility transport commission for the region affecting the visibility of Grand Canyon National Park.

Under the authority of Section 169B, the EPA established the Commission and defined the Area of Concern to be addressed by the Commission as the "Golden Circle" of Class I national parks and wildernesses on the Colorado Plateau (figure2).

The Transport Region includes the states from which consistent meteorological patterns can transport either current pollution, projected pollution, or clean air to the Area of Concern and the states containing the Class I Areas of Concern. The states dominating air transport to the Area of Concern are: Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, and Utah. The Transport Region does not officially include foreign countries but the Commission will take into account emissions and air parcel transport from Mexico as appropriate in technical and policy considerations.

The Commission includes representatives from seven western states, EPA, National Park Service, Bureau of Land Management, Forest Service, and Fish and Wildlife Service. Federal agencies are ex-officio members.

THE WORK PLAN

The Commission met on November 13, 1991, and on May 8 and June 21, 1992. By-laws and an operational Work Plan have been formally adopted. The Commission has four years to report its recommendation to the EPA. To meet this schedule, the Work Plan calls for the concurrent performance of planning/guidance, technical assessment, communication, and reporting activities. The approach will be interactive among the interested states, agencies and interests in order to facilitate maximum public input and meet the timeline with limited resources.

ƒ Planning/Guidance

During the Winter of 1992-1993, the Commission will be briefed on the "State of the Science" and may provide initial guidance to the staff committees to further refine the scope of the assessment. Ongoing guidance from the Commission to committees at critical junctures will also be needed, particularly on selection and refinement of the management options being assessed.

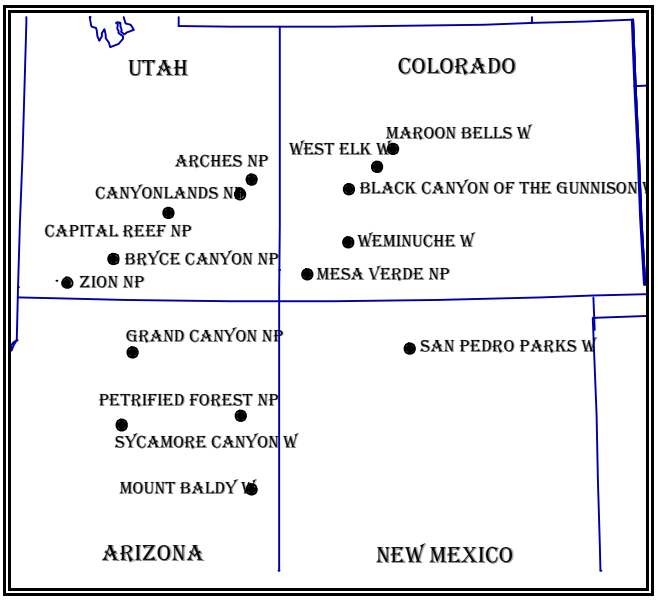

Figure 2. Class I Areas included in The Area of Concern - The "Golden Circle" of National Parks and Wildernesses.

ƒ Technical Assessment

Technical assessment is the foundation of the Commission's report to EPA. The assessment will identify:

- Pollutants that contribute to haze;
- Location and strength of the sources;
- Visibility benefits of all Clean Air Act emission reductions; and
- Projections of haze, socioeconomic impacts, and direct costs under various emission control strategies and growth scenarios.

To better understand the causes and effects of visibility impairment in the Area of Concern, the following specific technical assessment activities are outlined in the Work Plan:

1. **Review Currently Available Studies**. Many issues will likely be answered by examining existing analyses or conducting additional analyses of the large amount of existing data related to visibility in the Golden Circle.
2. **Identify New Data Needs**. If needed, additional data will be acquired through ongoing or planned research and monitoring programs sponsored by various entities. Other data gaps may be filled through new, highly-focused data gathering efforts.
3. **Project Future Haze Conditions.** Estimating future visibility conditions in the Golden Circle will involve characterizing emissions and resulting visibility based on growth, the effects of the Clean Air Act, and other area-specific emission changes.

This effort will provide a picture of what might occur if no further action is taken to protect and/or improve visibility in the Area of Concern.

4. **Identify Emission Management Options**. Data regarding the cost and effectiveness of pollution management and control strategies will be compiled, public input on options will be actively solicited, and options to be considered for further assessment will be selected.

5. **Assess the Technical Feasibility of Selected Management Options, Costs and Socioeconomic Costs and Benefits**. Information will be compiled on the technical feasibility, direct costs, socioeconomic costs, and benefits of management options developed to protect/improve visibility. Based on input obtained in public workshops, criteria for evaluating management options will be developed, and the full range of options will be assessed for their relative "acceptability." The Commission will develop a consensus on the most promising management options for remedying existing and preventing future visibility impairment in the Golden Circle.

6. **Conduct Integrated Assessment of Preferred Management Options Based on Selected Case Studies**. Preferred options will be subjected to more detailed analysis. Based on this analysis, the Commission will develop its policy recommendations.

ƒ Communications

The Work Plan calls for continuing communication and coordination between the Commission and staff committees. Public and peer review of plans, proposals and draft reports will be solicited through the Public Advisory Committee and public input opportunities such as workshops. Public education efforts will disseminate information about the Commission's work. A communications plan will be prepared.

ƒ Reports

Preparation of a draft report, establishing mechanisms for peer review of the draft, providing additional opportunities for input through a public workshop regarding the draft report and the preparation of a final report to EPA by November 1995 are provided for in the Work Plan.

FOR FURTHER INFORMATION

For a copy of the Work Plan, meeting schedules, committee activities, and other information about the Commission, contact John Leary, Project Manager, at

VIENNA CONFERENCE PAPERS

(continued from page 1)

"Examination of the Effects of Sulfate Acidity and Relative Humidity on Light Scattering at Shenandoah National Park", Kristi A. Gebhart and William C. Malm, National Park Service.

"Study Design for Regional Haze Attribution to a Large Stationary Source", Mark C. Green et al., Desert Research Institute.

"Cluster Analysis of Trajectories with Applications to the Study of Source Receptor Relationships", Hariharen K. Iyer and Kristi A. Gebhart, Colorado State University and National Park Service.

"Assessing The Effect of SO^2 Emission Changes On Visibility", William C. Malm et al., National Park Service.

"Visual Air Quality Simulation Techniques", John V. Molenar et al., Air Resource Specialists, Inc.

"Ambient Optical Monitoring Techniques", John V. Molenar and William C. Malm , Air Resource Specialists and National Park Service.

"Relationship Between Measured Water Vapor Growth and Chemistry of Atmospheric Aerosol for Grand Canyon, Arizona in Winter, 1990", Mark L. Pitchford and Peter H. McMurray, Environmental Protection Agency and University of Minnesota.

"Development and Applications of a Standard Visual Index", Mark L. Pitchford and William C. Malm, Environmental Protection Agency and National Park Service.

"The Relative Importance Of Soluble Aerosols To Spatial And Seasonal Trends Of Impaired Visibility In The United States", James F. Sisler et al., Colorado State University.

IMPROVE STEERING COMMITTEE

IMPROVE Steering Committee members represent their respective agencies and meet periodically to establish and evaluate program goals and actions. IMPROVE-related questions within agencies should be directed to the agency's Steering Committee representative. Steering Committee representatives are:

U.S. EPA
Marc Pitchford
Environmental Monitoring Systems Lab
P.O. Box 93478
Las Vegas, NV 89193-3478
702/895-0432 (Phone)
702/895-0496 (Fax)

U.S. EPA
Joe Elkins
MD-14
OAQPS
Research Triangle Park, NC 27711
919/541-5653 (Phone)
919/541-2357 (Fax)

NPS
William Malm
NPS-AIR
Colorado State University
CIRA - Foothills Campus

Fort Collins, CO 80523
303/491-8292 (Phone)

BLM
Scott Archer
Colorado State Office
2850 Youngfield
Lakewood, CO 80215
303/239-3726 (Phone)
303/239-3933 (Fax)

USFS
Rich Fisher
Air Specialist, Wash. Office
Rocky Mtn. Experiment Sta.
240 W. Prospect
Fort Collins, CO 80526
303/498-1232 (Phone)
303/323-1010 (Fax)

FWS
Sandra Silva
Fish and Wildlife Service
P.O. Box 25287
Denver, CO 80225
303/969-2814 (Phone)
303/969-2822 (Fax)

NESCAUM
Rich Poirot
VT Agency of Nat. Res.
103 South Main Street
Building 3 South
Waterbury, VT 05676
802/244-8731 (Phone)
802/244-5141 (Fax)

STAPPA
Dan Ely
Colorado Dept. of Health
Air Pollution Control Div.
4300 Cherry Creek Drive S.
Denver, CO 80222-1530
303/692-3228 (Phone)
303/692-5493 (Fax)

WESTAR
John Core
Executive Director
1001 S.W. 5th Ave.,
Suite 1000
Portland, OR 97204
503/220-1660 (Phone)
503/220-1651 (Fax)

PREVIEW OF UPCOMING ISSUE . . .

The next IMPROVE Newsletter will be published on January 15, 1993, and will include:

- Network Status for the Fall 1992 Season
- **FEATURE ARTICLE: *IMPROVE, The First Three Years.*** Comprehensive analyses of IMPROVE data collected between Spring 1988, and Winter 1990-1991 were performed by the NPS, Air Quality Division and summarized in a final report. This feature article will present highlights of this report.

PUBLISHED BY:

Air Resource Specialists, Inc.

1901 Sharp Point Drive
Suite E
Fort Collins, CO 80525

The IMPROVE Newsletter is published four times a year (April, July, October, & January) under NPS Contract CX-0001-1-0025.

Your input to the IMPROVE Newsletter is always welcome. For more information, address corrections, or to receive the IMPROVE Newsletter, contact:

Air Resource Specialists, Inc.
303/484-7941 Phone
303/484-3423 Fax

IMPROVE Newsletter text is also available on the **EPA AMTIC Electronic Bulletin Board:**

919-541-5742
(1200 or 2400 baud)
919-541-1447
(9600 baud)

printed on recycled paper

Air Resource Specialists, Inc.
1901 Sharp Point Drive, Suite E
Fort Collins, CO 80525

TO:

First Class Mail