INTERAGENCY MONITORING OF PROTECTED VISUAL ENVIRONMENTS

IMPROVE

Volume 5, No. 1 **Winter 1996** **April 1996**

IMPROVE MONITORING UPDATE

Preliminary data collection statistics for the Winter 1996 season (December, January, and February) are:

Data Type	Collection Percentage
Aerosol Data	86%
Optical (transmissometer) Data	76%
Optical (nephelometer) Data	93%
Scene (photographic) Data	84%

The federal furloughs in December 1995 and January 1996 caused a drop in the recovery rates for the winter period.

Aerosol data and summaries are completed through Winter 1995. Contract difficulties involving outside laboratories have caused a delay, but these problems have been solved and UC-Davis hopes to catch up in 6 to 12 months.

Figure 1 shows the current IMPROVE and IMPROVE Protocol sites.

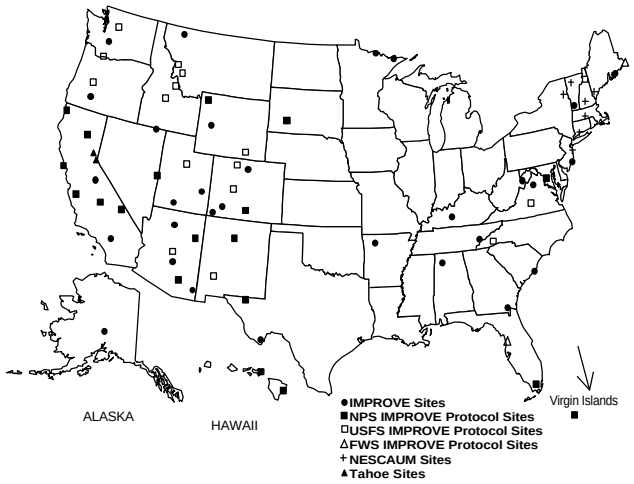

Figure 1. IMPROVE and IMPROVE Protocol Sites April 1996

VISIBILITY NEWS....

Tahoe Regional Planning Agency Upgrades Monitoring

The Tahoe Regional Planning Agency (TRPA) recently installed an Optec NGN-2 nephelometer at the South Lake Tahoe visibility monitoring site. This Optec nephelometer replaced a Belfort nephelometer that operated since 1989. Upgrading to the newer, improved ambient nephelometer should produce more accurate measurements of atmospheric scattering in the area and be a more reliable instrument. Another TRPA site at Bliss State Park is also configured with a Belfort nephelometer. The site is scheduled to receive an Optec instrument sometime next year, as funds permit.

The TRPA program operates according to IMPROVE Protocols, and monitors with a transmissometer, nephelometers, aerosol samplers, and an automatic camera system. The two Lake Tahoe monitoring locations constitute a unique monitoring area. South Lake Tahoe air has been found to be quite polluted while Bliss State Park air, only 15 kilometers away, is very clean. TRPA also plans to reevaluate their visibility thresholds this year. For more information about TRPA, refer to IMPROVE Newsletter (Vol. 3, No. 4) *Aerosols and Visibility at Lake Tahoe*, or contact:

Bridget Mahern
Tahoe Regional Planning Agency
Telephone: 702/588-4547

Regional Air Quality Partnerships Developing

The National Park Service (NPS) is working with various federal land management agencies and Indian tribes to organize air quality partnerships on a regional level. The partnerships are formed around eco-regions, areas with similar species of plants, animals, and other resources adversely impacted from the same regional pollution sources. These partnerships will allow each agency to use its funds more effectively by pooling funds and sharing the cost of air quality monitoring and research. Consensual positions are developed during review of permits, environmental impact statements, and regulatory changes, giving the partnerships a stronger, unified voice in presenting these positions to air quality regulatory agencies. The primary objectives are to alert regulatory agencies to adverse impacts on protected land resources and work with them to reduce emissions from existing sources, the primary cause of the problem.

Four regional partnerships have developed charters defining goals and objectives: 1) the Federal Clean Air Partnership (FCAP) in the Sierra Nevada region; 2) the Southern Appalachian Mountains Initiative (SAMI); 3) the Northeast Regional Air Quality Committee (NERAQC); and 4) the Arizona, Federal, and Tribal Clean Air Partnership (AFTCAP). Additional partnerships are at various stages of organization in: 1) the California/Nevada desert; 2) the Great Lakes; 3) the Northern Cascades; and 4) the northern Great Plains. Several other partnerships have been proposed. For more information contact:

Erik Hauge
National Park Service - Air Resources Division
Telephone: 303/969-2078

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Feature Profile

Carl Bowman Sees Grand Canyon National Park as a Flagship

Carl Bowman came to Grand Canyon National Park in 1990 thinking air quality management would encompass only a third of his job responsibilities. But as air quality became more of an issue in the region, Carl's job became more centered around air quality.

Grand Canyon, one of the most intensely monitored areas of the United States, is the focus of numerous monitoring and research studies and has long been a major center for visibility research. The park can be considered a "flagship" monitoring park, as it is often selected as the first site in a national or regional monitoring network.

Carl began his career with the National Park Service in 1974 as a Park Ranger at Petrified Forest National Park. In 1986 he became the Resource Management Specialist at the park, maintaining state-of-the-art visibility and air quality monitoring instrumentation. He remembers the park receiving one of the first transmissometers in 1987. Air quality became a major part of his job after transferring to Grand Canyon in 1990, and it eventually evolved into his entire job.

Now serving as Air Quality Coordinator at Grand Canyon, Carl is assisted by Melissa Shaw, a temporary park employee who maintains the visibility and air quality monitoring instrumentation. Carl says 60% of Melissa's time is spent performing station checks and instrument maintenance. Melissa and Carl are working together to optimize the monitoring effort. "We are fine tuning monitoring by determining if the current placement of each instrument is the best location," says Carl.

The park has a diverse and plentiful array of monitoring instrumentation, including two transmissometers (one that monitors visibility above the rim and one that monitors visibility inside the canyon), two IMPROVE aerosol samplers (one on the rim and another inside the canyon), wet and dry deposition samplers, continuous ozone samplers, meteorological monitoring (air temperature, relative humidity, wind speed and direction, solar radiation, precipitation, and wetness sensing), and an automatic camera system. Grand Canyon is also scheduled to receive an ambient nephelometer later this spring.

In addition to overseeing the monitoring program, Carl also works with the park's interpretation division creating handouts and fliers for park visitors, and with regional regulatory agencies regarding air quality issues. He is assisting the State of Arizona in developing a Class I area monitoring program for visibility, and is participating in the Arizona, Federal and Tribal Clean Air Partnership. The Partnership's goal is to get various agencies involved in determining common problems, identifying differences, and developing a coordinated approach to air quality management in the state.

Carl received a BS degree in Biology with a minor in Archeology from New Mexico State University. He says, however, "my air quality training was received from the school of hard knocks." Carl, his wife, and two small sons live a short walk from the rim of the canyon, where they like to camp, hike, study the area's geology, and occasionally peer through the transmissometer telescope.

***Grand Canyon** continued on page 3*

Carl Bowman, Air Quality Coordinator, at the Desert View air quality monitoring site in Grand Canyon National Park, Arizona.

***Grand Canyon** continued from page 2...*

Over the years, Carl has witnessed a variety of air quality studies in the park. Examples of recent research are:

- v Ultraviolet-B monitoring is being conducted by the Department of Agriculture as part of a nationwide monitoring effort. The department hopes to determine how various levels of UV-B radiation affects crops.
- v Airborne radioactive particulate monitoring by the State of Arizona is in its second year. Alpha and gamma particulate levels will be monitored at two sites near Grand Canyon to determine effects of a proposed low-level nuclear waste disposal site to be constructed near Needles, California, and effects of possible uranium mining activities surrounding the park.
- v Air pollution effects upon lichens that live in the canyon have been the focus of one graduate student's study. "Lichens are very susceptible to air pollution and absorb airborne particles like a sponge," says Carl. Study results for the student's thesis indicate that the plants have not been affected by air pollutants. The study helped the park survey its species of lichens; all species thought to exist in the park have been accounted for.
- v Ozone effects on Ponderosa Pine is another recent study in the park. Study results indicate that the pines within the park show no signs of ozone damage at this time.

With the natural importance that the Grand Canyon has, Carl foresees that it will continue to be a "flagship" park, a leading area to study and test new technologies, new theories, and new developments in air quality management. Carl plans to be on the deck of that flagship.

***Visibility News** continued from page 1...*

Sulfate Trends Re-examined

UC-Davis published a paper in 1994 examining the trends in sulfate concentrations at 10 western and 2 eastern sites between 1982 and 1992. They have recently re-evaluated these trends. The results will be presented in a paper to be delivered in June 1996.

Since the first paper, UC-Davis has examined the trends in annual SO_2 emissions in greater detail. Between 1985 and 1994, national annual SO_2 emissions decreased at a rate of 0.9% per year. However, between 1984 and 1994, annual emissions near Great Smoky Mountains National Park increased at a rate of 1.7%) 0.6% per year, using data provided by the Tennessee Valley Authority to indicate coal-fired electric utility emissions in the region. UC-Davis concluded that observed increases in sulfate concentrations reflect emission increases. For more information, contact:

Bob Eldred
University of California - Davis
Telephone: 916/752-1124

Grand Canyon Visibility Transport Commission (GCVTC)

The commission is holding a series of meetings to finalize its recommendations to the EPA on what, if any, additional pollution control measures are needed to deal with regional haze. The recommendations will be presented at Grand Canyon National Park on June 10, 1996.

The commission's Public Advisory Committee is seeking comments on its strategies for improving visibility in national parks and wilderness areas on the Colorado Plateau, specifically involving: stationary sources, mobile sources, managed fire, pollution sources in and near Class I areas, pollution prevention, clean air corridors, Mexican emissions, tribal concerns, the future role of the commission, and additional monitoring. The deadline for public comments to be considered in the commission's recommendations is April 24.

A schedule of public meetings to be held in April is listed below. The schedule is continuously updated and can be accessed by calling the commission's automated information hotline at 800/659-5858, or by logging onto its bulletin board at 303/446-0349. Up-to-date information, agendas, or meeting minutes can be obtained from the BBS, or by contacting Project Manager John Leary or Program Assistant Carl Schiötz at 303/623-9378.

Public Hearings on Proposals for Improving Colorado Plateau Visibility:

Grand Junction, CO	April 15
Santa Fe, NM	April 15
Reno, NV	April 16
District of Columbia	April 16
Albuquerque, NM	April 17
Rock Springs, WY	April 17
Moab, UT	April 17

Comments should be sent to:

Grand Canyon Visibility Transport Commission
c/o Western Governors' Association
600 17th Street, Suite 1705 South
Denver, CO 80202-5452

Comments can also be faxed to the commission at 303/534-7309, or be uploaded to the commission's electronic bulletin board at 303/446-0349 (write message to "SYSOP" and attach the comments).

Proposals of the Public Advisory Committee will be available from the Western Governors' Association at 800/659-5858. They will also be available on the commission's electronic bulletin board at 303/446-0349 and at http://www.nmia.com/gcvtc on the World Wide Web.

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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:

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The next IMPROVE Newsletter will be published in July 1996.

Please Contact Us: If you know someone who would like to receive the newsletter or if you are no longer interested in receiving a copy, please call us at 970/484-7941. Your ideas and comments are always welcome. We continue to look for ways to improve the newsletter and to provide you with interesting and pertinent information.

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