

IMPROVE Steering Committee Meeting Summary February 13, 1997

A meeting of the IMPROVE Steering Committee was held in Las Vegas, NV on February 13, 1997. The summary below is based upon my notes (errors and omissions are mine alone) and is presented in the order in which the discussions took place. Action items are in **bold font**.

After introductions and agenda review, each of the steering committee members indicated specific issues of concern to the agencies that they represented. Sandra Silva indicated that FWS intended to fund a new monitoring site at Breton Island, LA. There was a discussion concerning whether Teflon or other coatings of the IMPROVE sampler for Breton Island would be beneficial in protecting it from the corrosive effects of sea spray without adversely affecting its performance. **UCD staff were asked to investigate this issue.** Sandra also said that they were assessing the impact of paper mill emissions on visibility at Moosehorn Wilderness, MA.

Bruce Polkowsky described the approach that EPA staff are considering for the regional haze regulations and asked for comments by the IMPROVE Steering Committee. Basically the approach defines metrics for the clean and haze days as the average of the deciview values for the 20% cleanest and for the 20% most impaired days respectively. Deciview values would be determined by particle reconstructed light extinction using an approach similar to that used by the Grand Canyon Visibility Commission. Visibility protection provisions of the Clean Air Act call for progress towards the goal of eliminating man-made visibility impairment. The planned new haze policy would establish the rate of progress towards the goal as a 1dv improvement per decade for the most impaired days and no degradation for the least impaired days. IMPROVE data is expected to be the basis for the metric. More monitoring sites would likely be required since the assessment would have to be done for each visibility-protected federal Class I area. However, since only the regional haze aspects of visibility impairment would be considered in this new policy, monitoring sites could represent a number of nearby Class I areas. **Bruce asked the Steering Committee to comment on the metric, the progress target, and the possibility of additional monitoring.** He expects that the IMPROVE Program and Steering Committee may have a substantial role to play and a voice in the monitoring issues for the regional haze regulations.

Bob Bachman indicated that a settlement had been reached in the negotiations between the state and utility company that operates the Centrailia Power Plant in Washington (largest uncontrolled power plant in the west) to have 90% sulfur dioxide controls within five years. According to Bob, IMPROVE data was instrumental in reaching this outcome.

On another subject Bob asked the IMPROVE Steering Committee to consider to what extent and by what procedures the IMPROVE aerosol data could be used to address the issue of dry deposition. **After some discussion, a commitment was made to prepare an article on the subject for an upcoming issue of the IMPROVE Newsletter, and to have UCD look into the feasibility and cost of nitric acid and SO₂ monitoring to augment the standard IMPROVE protocol aerosol monitoring.** Finally Bob asked whether there were any methods to separate urban (transportation related) organics from smoke organics. UCD and DRI (the carbon analysis contractor for IMPROVE) have investigated this issue in the past, but have not found any satisfactory approach to date.

Dan Ely reported on the outcome of the Mt. Zirkel study and thanked those that participated in it. Emission controls have been negotiated for the Hayden power plant. More specifically concerning the IMPROVE Program, Dan reported that many states continue to be unhappy with EPA's method of funding IMPROVE with state 105 grant resources, since these resources would otherwise be available for direct use by the states. On the other hand they don't necessarily want IMPROVE to disappear.

Scott Archer indicated that BLM now co-manages, with the FS, the Dome Land Wilderness Class I area in California.

Rich Damberg reported on the status of the EPA funding contribution to the IMPROVE Program. \$1.25M are expected this year from EPA, which represents \$250k more than last year. This news initiated a fair amount of discussion concerning how to spend any additional resources that may be available. Among the many ideas voiced were to update some of the aging equipment that is in the field; to develop and test a protocol for monitoring particulate ammonium ion; to conduct additional research on the light absorption accuracy issue; and to put out additional sites. **It was agreed that a list of proposals with cost estimates be prepared before the next meeting. Rich and Bruce need to provide guidance concerning whether the resources are a one time windfall or a new higher level of funding by EPA, as this would influence spending decisions.**

Mark Scruggs asked about this year's FS contribution to IMPROVE, since for the last few years they have been short on the agreed upon contribution to support the optical monitoring at FS sites. **The FS representatives at the meeting were unaware of the current funding situation, but promised to look into the issue.**

Rich Poirot told the group about a Northeast Forest Trajectory Climatology study being done to infer the distant sources of pollutants using IMPROVE aerosol measurements. Use the World Wide Web [<http://capita.wustl.edu/neardat>] for more information. Then look under "technical reports." He also indicated that IMPROVE data is now available on the Internet. Home page address is [<http://capita.wustl.edu/capita>]. Then look under "data sets" and find the IMPROVE data which can be downloaded in several different ways.

Bruce Polkowsky indicated that a report was available on the utility of the forward scatter visibility monitor now deployed by the National Weather Service to replace the observer visual range program. Will Richards who did the assessment finds that the raw data seems to be well related to visibility and fine particles. However, since the Weather Service degrades the data prior to transmitting it from the monitoring sites, arrangements must be made to retrieve the data on a site-by-site basis for it to be useful.

Marc Pitchford discussed the role of the IMPROVE network sites in the proposed new PM_{2.5} NAAQS. The language of the EPA proposal encourages states to look to the IMPROVE monitoring sites in and near their states as a source for regional background PM_{2.5} data. Since every state is required to have at least one such site, additional background sites will need to be established. States are encouraged to consider siting these at visibility protected Class I areas if possible and use of the IMPROVE sampler. This could increase the number of protected areas with IMPROVE monitoring.

John Molenaar asked the Steering Committee to determine whether transmissometers at Glacier, Rocky Mtn., & Yosemite should be replaced with nephelometers because of the presently poor data recovery caused by turbulence, clouds, fog, & precipitation in the sight path of the transmissometer. After a discussion, the decision was made to continue at these sites for now. John also asked if we want to continue to operate the transmissometer measurements at Shenandoah now that a nephelometer is installed? The Steering Committee said yes, since this will provide an excellent opportunity to compare the two at an eastern site.

Bob Eldred announced to the group that the updated IMPROVE Aerosol Standard Operating Procedures (SOP) were completed. Also he announced that the ES&T journal article that he and Tom Cahill wrote rebutting the assertion by Delbert Eatough that IMPROVE sulfur data at desert sites were over-estimating the particulate sulfur because the alkaline soil particulate on the filters was converting the SO₂ to sulfate causing a positive artifact. The paper successfully shows that the data in Delbert's paper had uncertainty that was too large to be used in the analysis that he conducted and further that an analysis of IMPROVE sulfur vs sulfate would be able to detect a very small artifact, but none is found. Bob responded to a question concerning the lag time between sample collection and data availability by stating that the current lag is nearly a year.

Scott Copeland made a presentation that summarized analysis that he had been conducting concerning the comparability of nephelometer measured scattering coefficient (24-hour mean) and corresponding day reconstructed scattering coefficient. He found that the reconstructed values tended to be higher than the nephelometer measured values at the clean (lowest scattering coefficient) end of the distribution. The difference was found to be about 3Mm⁻¹. There didn't appear to be any discrepancy at the higher values although there is always a fair amount of scatter in the relationship and Scott indicated that there didn't seem to be a similar discrepancy between reconstructed extinction and the transmissometer measured extinction. This represents a serious concern for the Forest Service and other land managers that keep track of the 10th percentile visibility (clean end of the distribution) as a metric for judging possible visibility impairment.

We do not yet have a complete explanation for what is causing the discrepancy between the reconstructed and measured light scattering coefficient. However there is some satisfaction in knowing that the IMPROVE Program is unique in its capabilities to identify and understand this type of a problem, where most programs would not even be aware of it. IMPROVE has identified a number of these types of problems in the past and ultimately solved them (e.g., transmissometer lamp aging and window soiling; organic artifact on a batch of Teflon filters, sulfur – sulfate discrepancies at eastern sites in summer). **ARS and UCD staff and Scott were asked to continue to explore possible causes and to devise methods to remedy any problems and to correct past data if it can be credibly done.**

Meeting was adjourned by Marc Pitchford.

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IMPROVE Steering Committee Meeting Participants
February 13, 1997

<u>Name</u>	<u>Organization</u>
Sandra Silva	FWS
Bruce Polkowsky	EPA (via phone link)
Rich Damberg	EPA (via phone link)
Bob Bachman	FS
Cliff Benoit	FS
Scott Archer	BLM
Mark Scruggs	NPS
Bill Malm	NPS
Rich Poirot	NESCAUM (via phone link)
Dan Ely	STAPPA (via phone link)
Scott Copeland	CIRA
John Molenaar	ARS
Bob Eldred	UCD