Data Analysis Subcommittee Update

Jenny Hand, CIRA-CSU

Annual IMPROVE Steering Committee Meeting 17-18 October 2023, Kalispell, MT

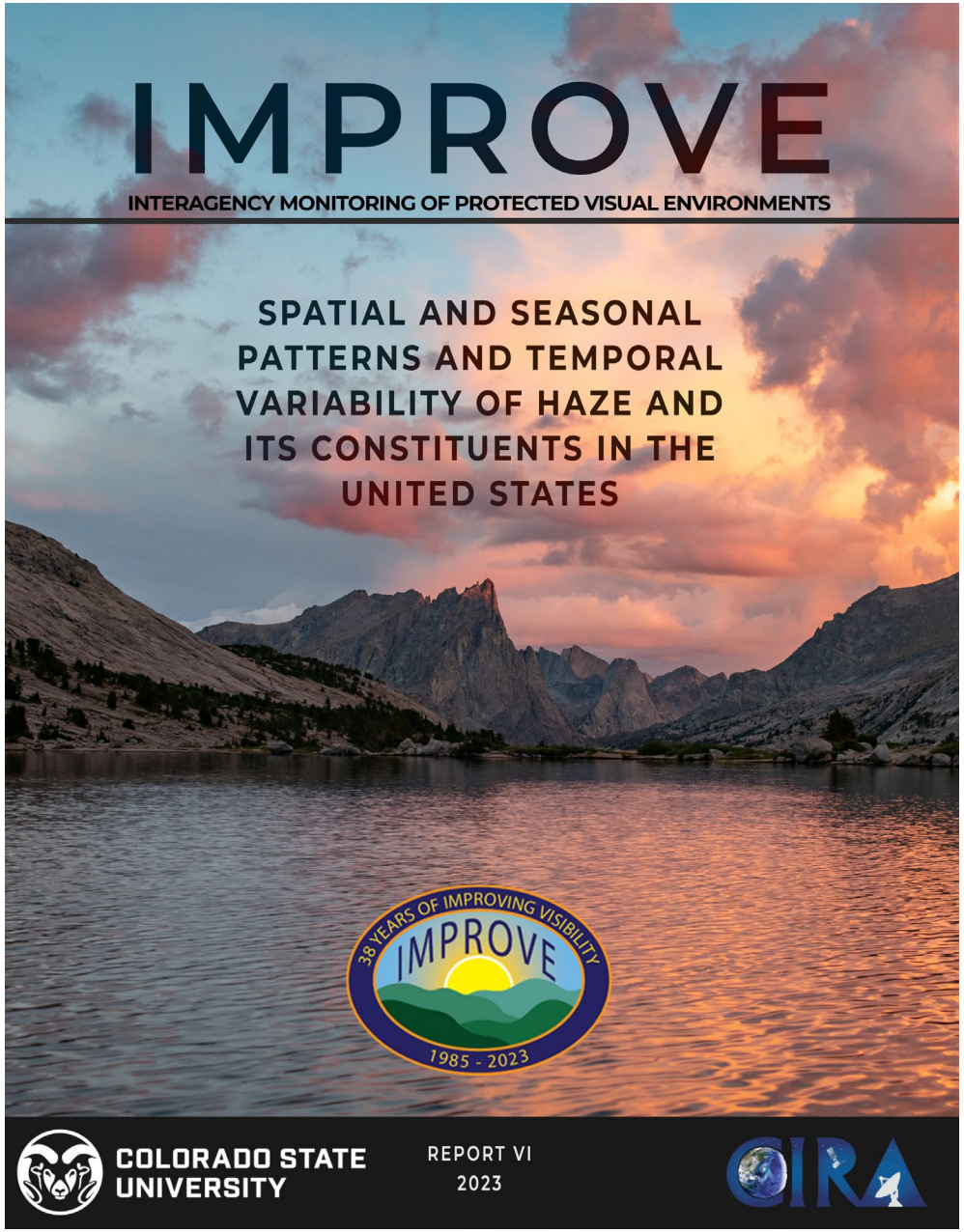
Data Compilation, Analysis, and Reporting:

- Developing the policies for generating and distributing the IMPROVE data, metadata, and data products to EPA AQS and CIRA FED
- Reviewing and overseeing all quality control assessments as defined in the QAPP and each year reviews irregular/suspect data and makes recommendations for its disposition
- Overseeing the generation of the routine reports and data products, e.g. the RHR metrics for tracking progress in visibility improvements
- Helping with the unique IMPROVE data analyses and assessments.
- Hold one virtual meeting per year (June 2023)

Members

Jenny Hand – Chair, CSU-CIRA
Margaret McCourtney – Minnesota Pollution Control Agency (MPCA)
Rebekka Fine – Air Quality Planning and Science Division, CARB
Liz Ulrich – Montana Dept of Environmental Quality
Bret Schichtel – NPS
Tony Prenni – NPS
Scott Copeland – CSU-CIRA
Bonne Ford – CSU-CIRA

IMPROVE Report 2023



http://vista.cira.colostate.edu/Improve/spatial-and-seasonal-patterns-and-temporal-variability-of-haze-and-its-constituents-in-the-united-states-report-vi-june-2023/

IMPROVE Data User Guide 2023

IMPROVE DATA USER GUIDE 2023 (VERSION 2)

Version 1.0 1995 User Guide can be found here.

1.0 INTRODUCTION

The IMPROVE Data User Guide provides information for the general user on routine monitoring, aerosol sampling and analysis, accessing and downloading data, descriptions of methods for determining concentrations, detection limits, uncertainties, calculated variables, mass and aerosol extinction reconstruction algorithms, and other applicable information for obtaining, analyzing and interpreting IMPROVE data. The guide will periodically be updated as new information is available or changes occur.

Information in this Guide is reproduced or summarized from several documents that provide additional details regarding the operation of the IMPROVE Network and reporting of IMPROVE data. These documents are available online and include:

- IMPROVE Standard Operating Procedures
- IMPROVE Quality Assurance and Control Reports
- IMPROVE Data Advisories
- IMPROVE Reports

2.0 ROUTINE MONITORING

The IMPROVE program began operating in 1987, with network monitoring initiated in March of 1988 at nearly 40 sites in Class I areas (CIAs). The network expanded and continually grew to about 70 sites through the 1990s. The monitoring sites were mostly in remote areas and all used the same instrumentation, monitoring, and analysis protocols. Adjustments to the suite

Data Subcommittee Meeting- June 2023

Hosted by Scott Copeland

- Discussion of data processing considerations
- Notes regarding data redelivery associated with various issues for preliminary 2021 data
- RHR- new variables added to data files (number of obs, site specific Rayleigh values)
- New sites were added to RHR files (FCPC1, KPBO1, SYCA2, LTCC1)

Regional Haze Metrics

- Impairment metrics here:
  https://drive.google.com/drive/folders/0Bxfj1vyyXeDYWVpfeUo4NEYtTU0?resourcekey=0-d0Bn5HHHEkgbiHZvIQWaLQ&usp=sharing

- Haziest Day metrics here:
  https://drive.google.com/drive/folders/0Bxfj1vyyXeDYTjNLelIwUUx0TTg?resourcekey=0-yt0EY9maDLhRmcE8s5tC6A&usp=sharing

- History of RHR metric changes since 10/2019.
  https://docs.google.com/presentation/d/1H3OpvZ6LBVrNmQyB-2vqS7GTJx1Uzbd9/edit?usp=share_link&ouid=116534812255078445612&rtpof=true&sd=true

Scott Copeland

Upcoming Activities… ?

Document	Update Frequency	Responsible Organization
IMPROVE QMP- Quality Management Plan	5 years (last revised 2002)	Data subcommittee
IMPROVE QAPP	5-years (last revised 2016)	Data subcommittee
IMPROVE Report ✓	5-years (2023)	Data subcommittee
Annual RHR metrics ✓	Annual (2021)	Data subcommittee

IMPROVE Quality Assurance Project Plan (QAPP)

Last version: 2016

From EPA:
"**The QA Project Plan** documents the planning, implementation, and assessment procedures of, and how specific QA and QC activities will be applied during a particular project…

It is **EPA policy** that all work funded by EPA in which environmental data will be collected, evaluated, used, or reported (including the use of existing data and modeling), or which involves the design, construction, and operation of environmental
technology, have approved QA Project Plans.

When should I revise my QA Project Plan?
When changes affect the scope, implementation, or assessment of the outcome, the plan is revised to keep project information current.

For **long-term projects**, such as multi-year monitoring programs, the QA Project Plan is **reviewed annually** by the Project Manager to determine the need for revision. This document shall be **valid for a period of up to five years** from the official date of publication. **After five years, it shall either be reissued without change, revised, or withdrawn** from the EPA Quality System."

IMPROVE Quality Management Plan (QMP)

Last version: 2002

From EPA:
"The **Quality Management Plan** documents how an organization structures its quality system and describes its quality policies and procedures, criteria for and areas of application, and roles, responsibilities, and authorities. It also describes an organization's policies and procedures for implementing and assessing the effectiveness of the quality system.

What is the difference between a QPM and a QAPP? A QMP describes an organization's quality system, i.e., its systematic approach to quality assurance, while a QAPP describes the necessary QA procedures, QC activities, and other technical activities that will be implemented for a specific project or program. The QMP may be viewed as the 'umbrella' document under which individual projects are conducted.

This document shall be valid for a period of up to **five years** from the official date of publication. **After five years, it shall either be reissued without change, revised**, or withdrawn from the EPA Quality System.

Each organization shall **review its QMP at least annually** to reconfirm the suitability and effectiveness of the approved quality management practices.

Conditions requiring the revision of an approved Quality Management Plan include:

- **Expiration of the five-year life span** of the Quality Management Plan;
- Major changes in mission and responsibilities, such as changes in the delegation status of a program;
- Re-organization of existing functions that affect programs covered by the Quality Management Plan;
- And assessment findings requiring corrective actions and response.

Discussion:

Next year’s activities?

RHR metrics
User Guide

Deliver notes below only affect previous year data at BLIS1 which has changed only site code to BLIS2 effective 1/1/2020. RHTS="BLIS_RHTS". All other changes are with respect to preliminary data from 2021.

Various	Various	Various	N/A	N/A	For various months and various analyses, field blank statistics used in the initial deliveries were invalidated and were recalculated for redelivery because individual filters changed after original delivery (e.g. due to reanalysis/reweigh, status change, swaps) or insufficient number of field blanks were available at the time of original processing.
BLIS1/2	1/21/2020 - 11/30/2021	All	N/A	N/A	This site moved to a temporary location at the beginning of 2020. However, the samplers are still at their temporary location so it was decided to make this a new site. The 2021 data has been updated accordingly to be associated with the new site. Data in AQS has been moved from being associated with BLIS1 monitors to being associated with BLIS2 monitors between the two dates. NPS has been contacted to determine how to handle the data.
Various	January 2021 - June 2021	A	XX	NM	A total of 71 filters were originally delivered with the elements Al, Cl, P, S, and Si invalidated with the XX status because of a suspected analysis issue. The source of the analysis issue is known and is suspected to impact more filters than the 71 filters identified during validation of 2021 data, however the impact on the reported data is thought to be minimal. For the redelivery 68 of the originally identified 71 filters had the XX status removed from the Cl, P, S, and Si elements, leaving Al as it was originally delivered. For three filters, all elements were re-validated as they were deemed to not be impacted by the issue. Investigations and analysis are ongoing.
All	June 2021 - December 2021	A	N/A	N/A	HIPS data (fAbs parameter) have been excluded from the skinny redelivery files between June 2021 and December 2021 while investigations are ongoing into suspect results. The data will likely be redelivered at a later date. Please do not use the fAbs data in the wide format files between June and December 2021.