

Data Analysis Subcommittee Update



Jenny Hand, CIRA-CSU

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.



Major Activities:

- IMPROVE 2023 RHR Metrics (Scott Copeland)
- Midwest IMPROVE site closures- data substitutions from nearby CSN sites?- Presented at spring meeting



Regional Haze Metrics

Impairment:

<https://drive.google.com/drive/folders/0Bxfj1vyyXeDYWVpfeUo4NEYtTU0?resourcekey=0-d0Bn5HHHEkghiHZvlQWaLQ&usp=sharing>

Haziest Days:

<https://drive.google.com/drive/folders/0Bxfj1vyyXeDYTjNLellwUUx0TTg?resourcekey=0-yt0EY9maDLhRmcE8s5tC6A&usp=sharing>



Scott Copeland



Reminder: IMPROVE Data User Guide 2023 is available

IMPROVE DATA USER GUIDE 2023 (VERSION 2)

Version 1.0 1995 User Guide can be found [here](#).

1.0 INTRODUCTION

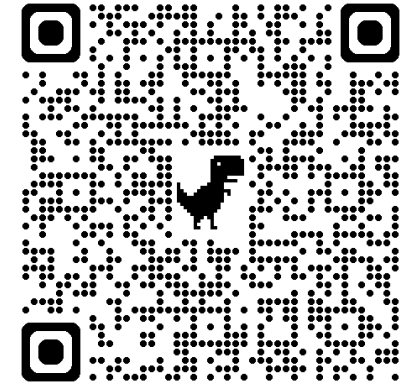
The IMPROVE Data User Guide provides information for the general user on routine monitoring, aerosol sampling and analysis, accessing and downloading data, descriptions of methods for determining concentrations, detection limits, uncertainties, calculated variables, mass and aerosol extinction reconstruction 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



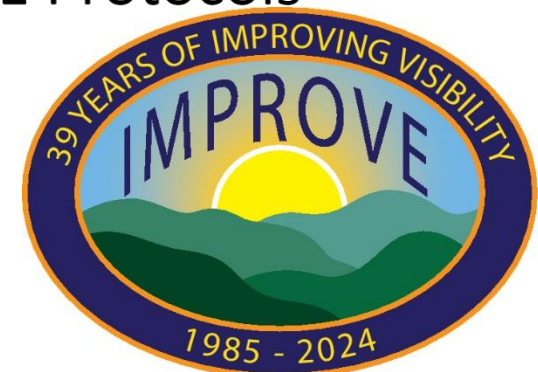
Upcoming Activities... ?

Document	Update Frequency	Responsible Organization
IMPROVE QAPP	5-years (last revised 2016)	Data subcommittee
IMPROVE outreach webinars		Outreach subcommittee
IMPROVE Report ✓	5-years (2023)	Data subcommittee
Annual RHR metrics ✓	Annual (2023)	Data subcommittee



IMPROVE Protocol Sites Shut Down in Iowa

- Viking Lake (VILA1) and Lake Sugema (LASU2)
- State requested discontinuation 7/1/2023
- State Rationale
 - Lake Sugema on the same side (eastern) of the state as Iowa's NCore site in Davenport (CSN)
 - Viking Lake is on the same side (western) of the state as Nebraska's NCore site in Omaha (CSN)
 - Overlap in suite of analytes collected by both CSN and IMPROVE Protocols and regional proximity of CSN and IMPROVE
 - Will continue PM2.5 mass measurements at both sites



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



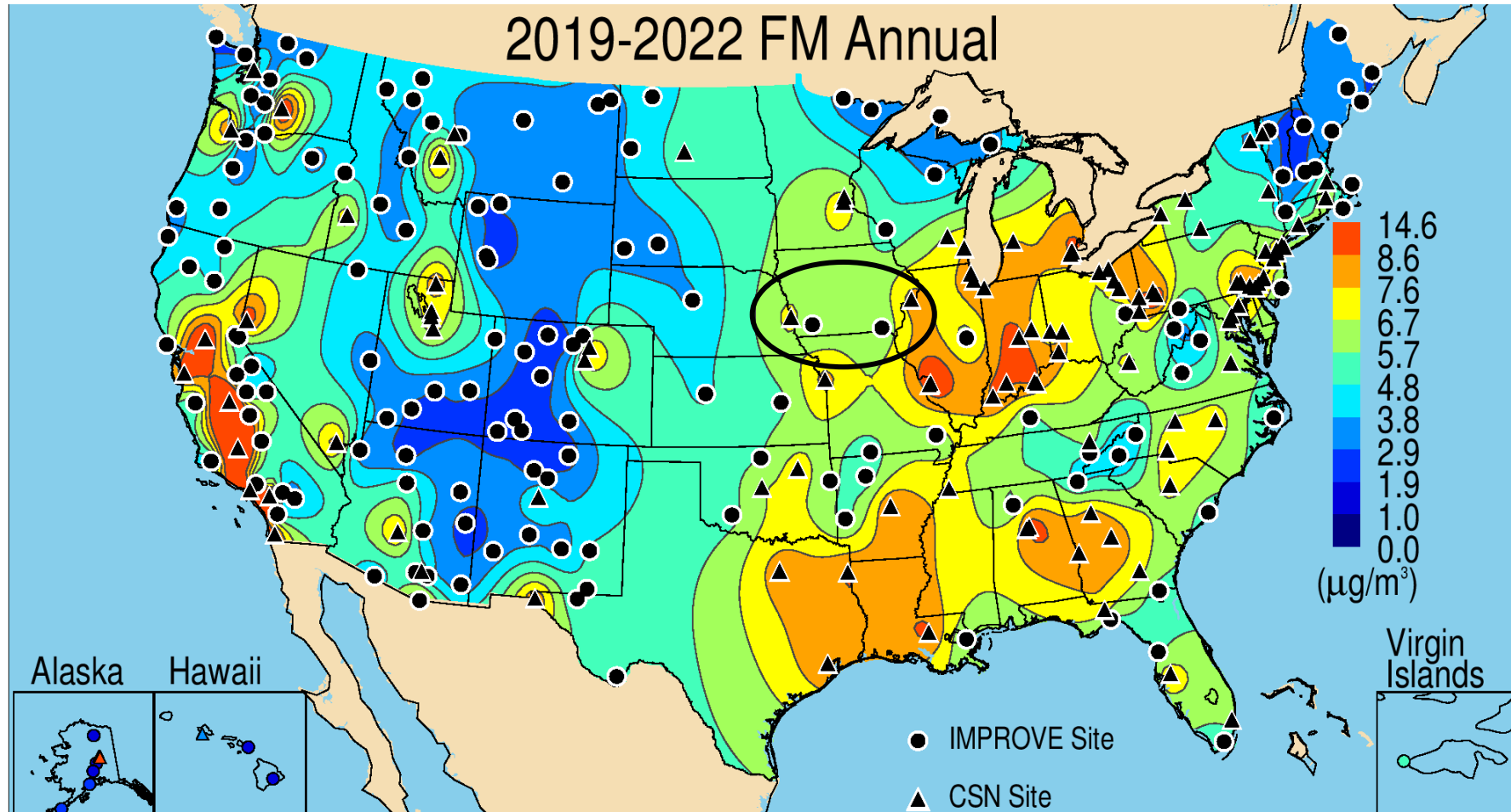
Do 'nearby' CSN sites represent LASU2 and VILA1?



2019-2022 Annual Mean Fine Mass

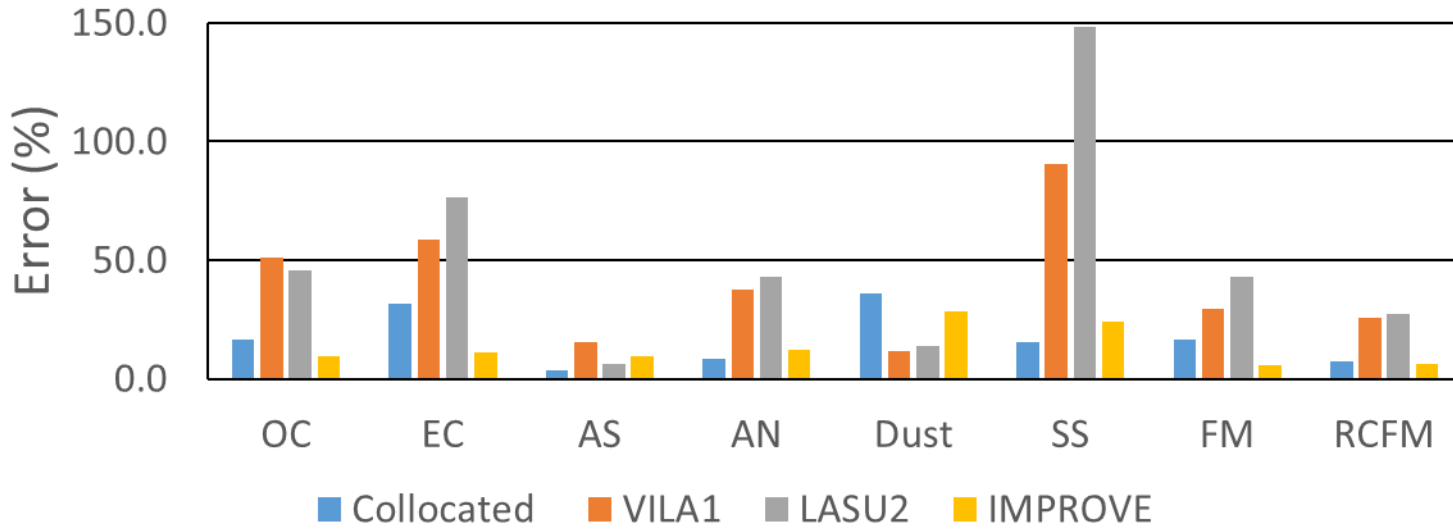
IMPROVE + CSN

2019-2022 FM Annual



Summary

2019-2022 Monthly Mean Error (%)



-IMPROVE and CSN sites have **similar seasonality** in absolute and relative concentrations.

VILA1 & CSN:

OC and EC have >50% error, bias
AN > 30%

Trends for FD and OC are dissimilar

LASU2 & CSN:

EC has > 50% error, bias
FM, OC, and AN have > 40% error, bias

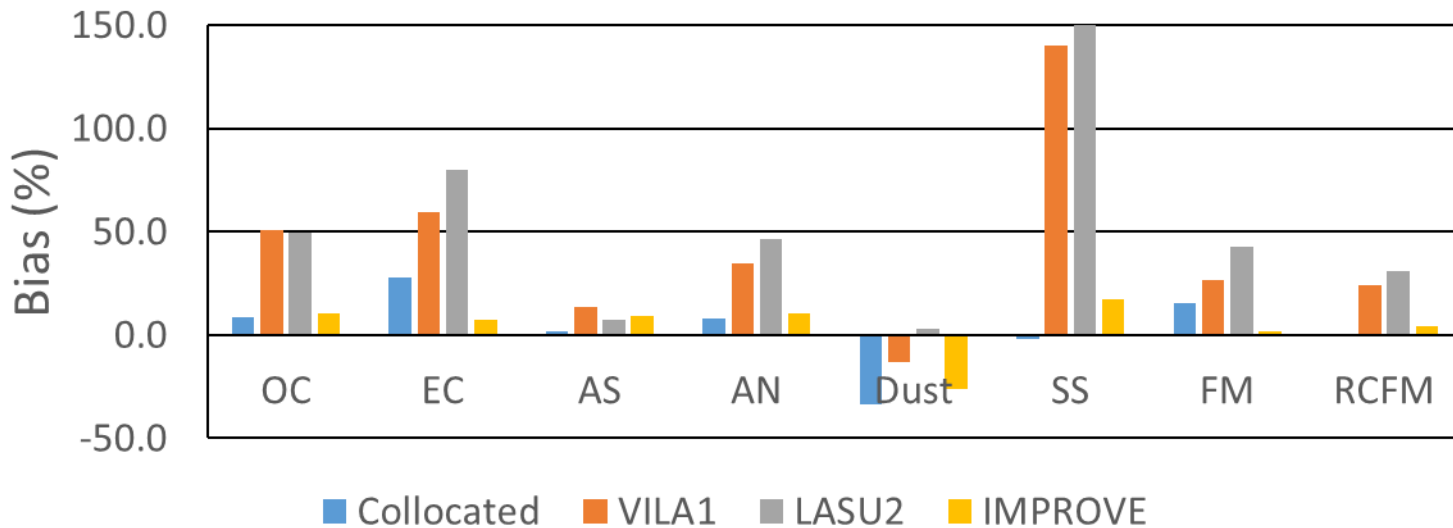
Trends for OC and EC are dissimilar.

VILA1 and LASU2

Biases and errors < 30%

Trends agree.

2019-2022 Monthly Mean Bias (%)



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.

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.

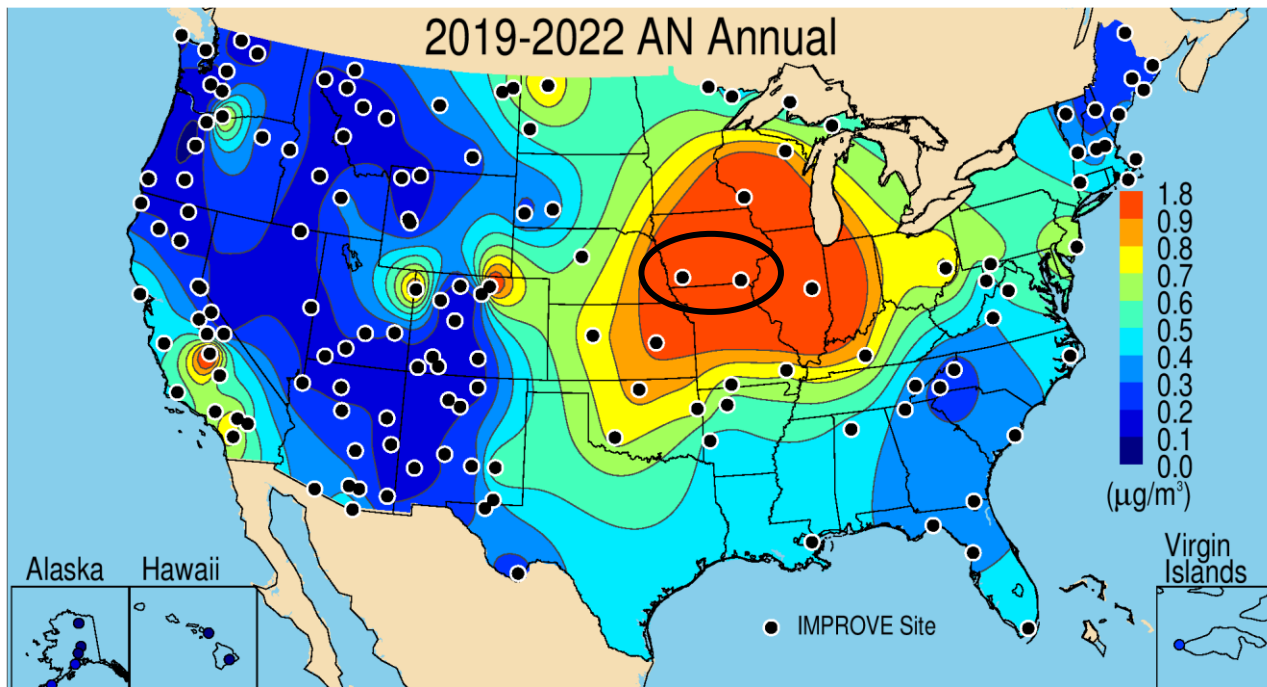
When should I revise my QA Project Plan?

When changes affect the scope, implementation, or assessment of the outcome, the plan is revised to keep project information current.

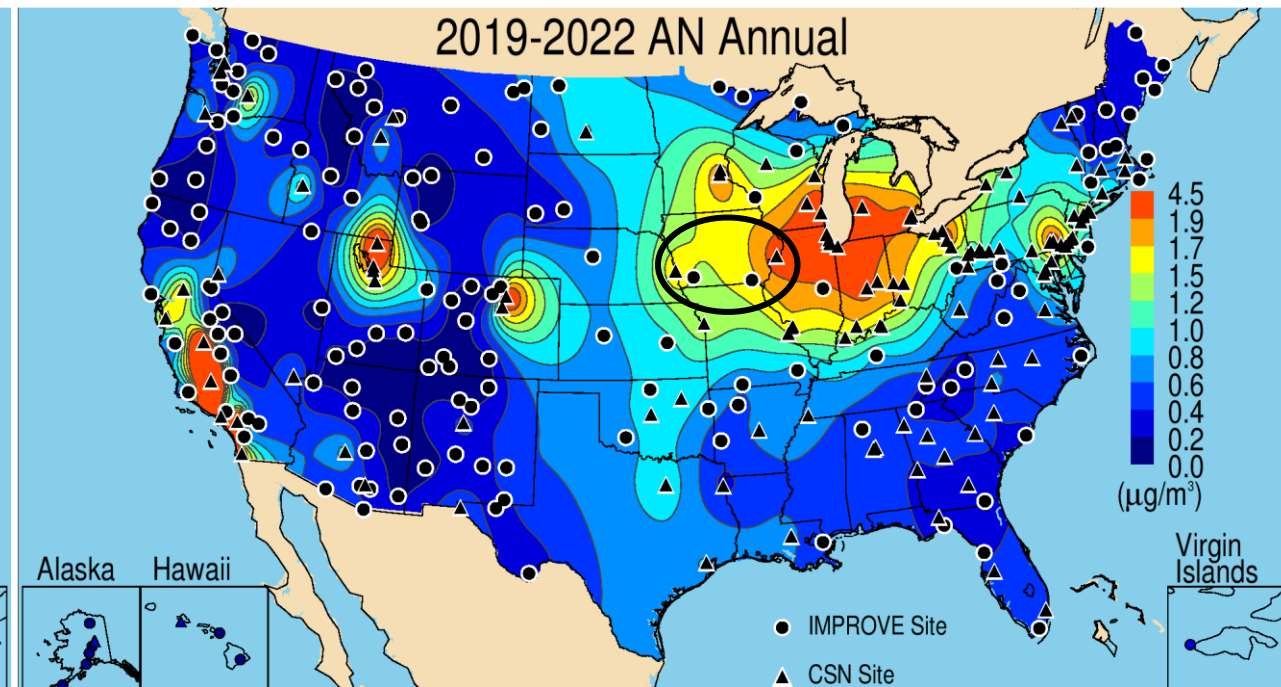
For **long-term projects**, such as multi-year monitoring programs, the QA Project Plan is **reviewed annually** by the Project Manager to determine the need for revision. This document shall be **valid for a period of up to five years** from the official date of publication. **After five years, it shall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

2019-2022 Annual Mean Ammonium Nitrate (AN)

IMPROVE

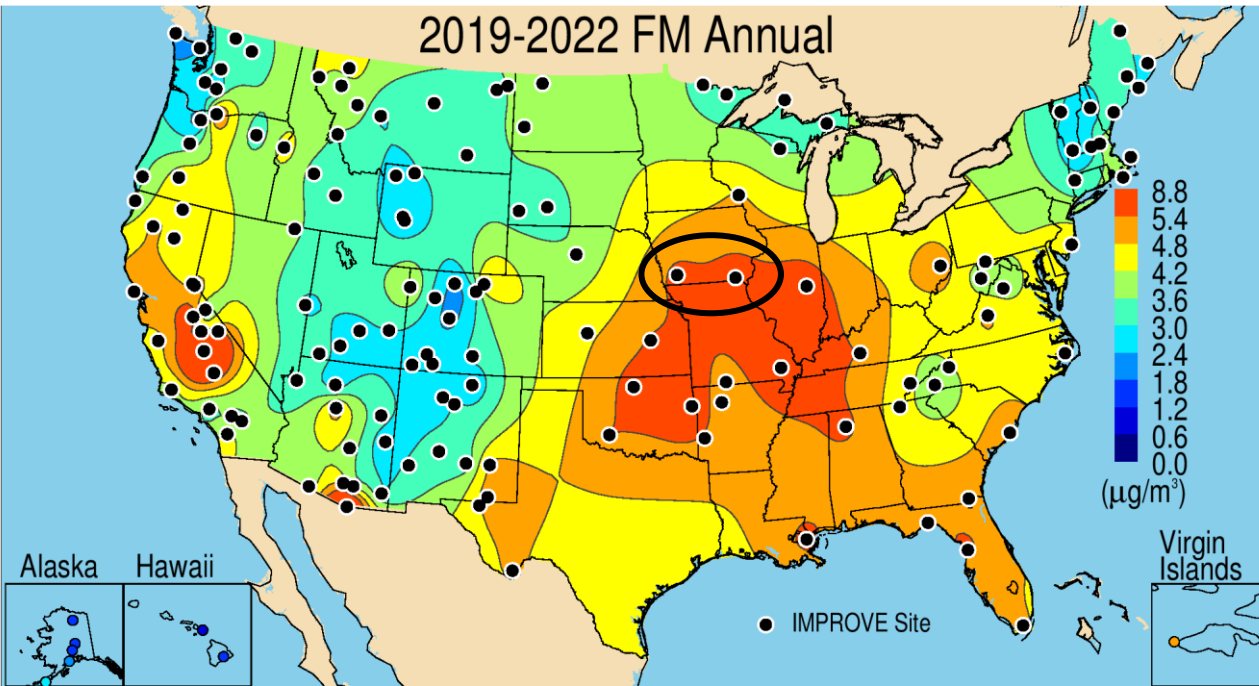


IMPROVE + CSN



2019-2022 Annual Mean Fine Mass

IMPROVE



IMPROVE + CSN

