

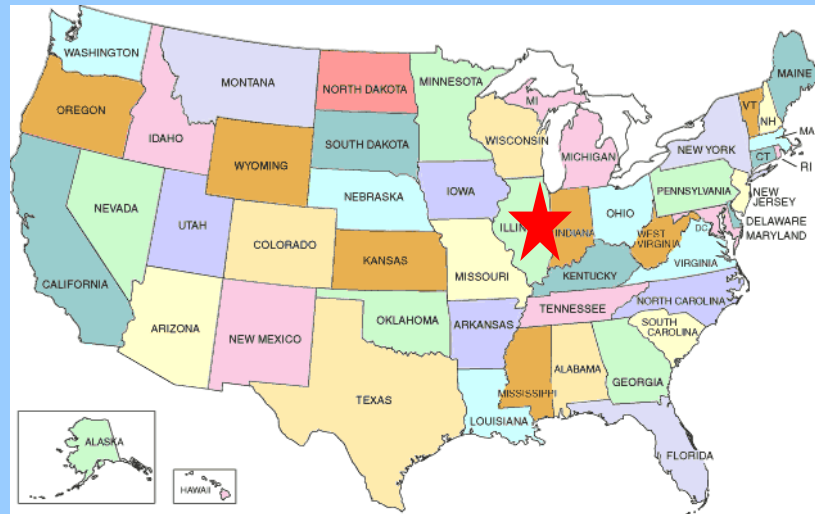


National Atmospheric  
Deposition Program

# What is the NADP?

# Officially, the NADP is a research project at the University of Illinois

- Coordinated funding between the
  - United States Department of Agriculture
  - Individual state Agricultural Research Universities, and
  - U of Illinois



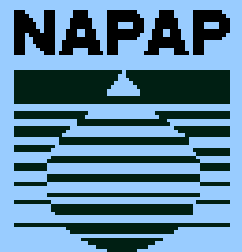
More Accurately, we are:

- A *Cooperative* Research Program
- Owned and operated by our members
- Decisions made by our members

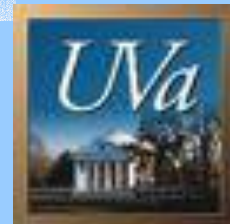
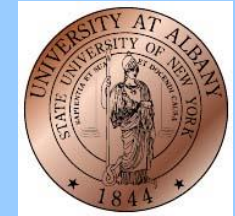


We have 250 cooperators....

# Federal Agency Members



# University Members

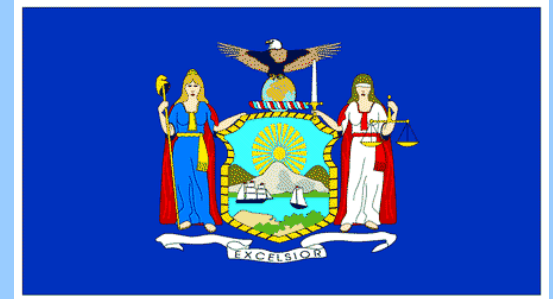




# Tribal Organizations



# American States





Environment  
Canada

Environnement  
Canada

Environnement  
Québec



# Other Research Organizations



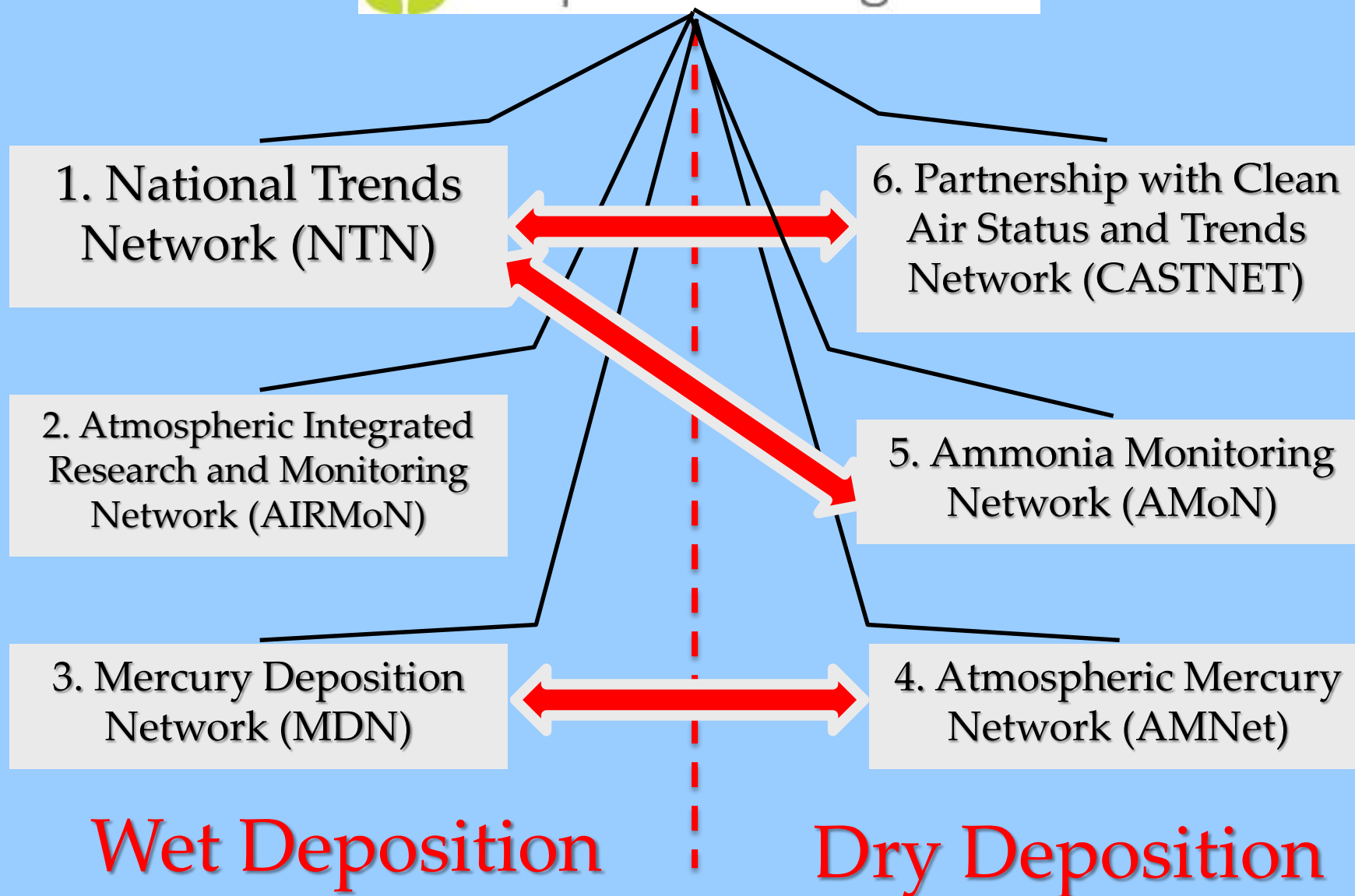
Audubon Center of the North Woods

# NADP's Goal

*To monitor the chemistry of precipitation (rain and snow) and the atmosphere as consistently and as accurately as we can, for long periods to determine changes over time (trends).*



# National Atmospheric Deposition Program



# NADP Organization

## MANAGEMENT

### Executive Committee

Budget Advisory  
Committee

Quality Assurance  
Advisory Group

Subcommittee on  
Network Operations

Subcommittee on  
Data Management  
and Analysis

Subcommittee on  
Environmental Effects

### Program Office

QA Manager

Program Coordinator

## OPERATIONS

AMoN

NTN

AIRMoN

MDN

AMNet

Laboratory

Laboratory

# NTN Sites

Began in 1978

Sulfate

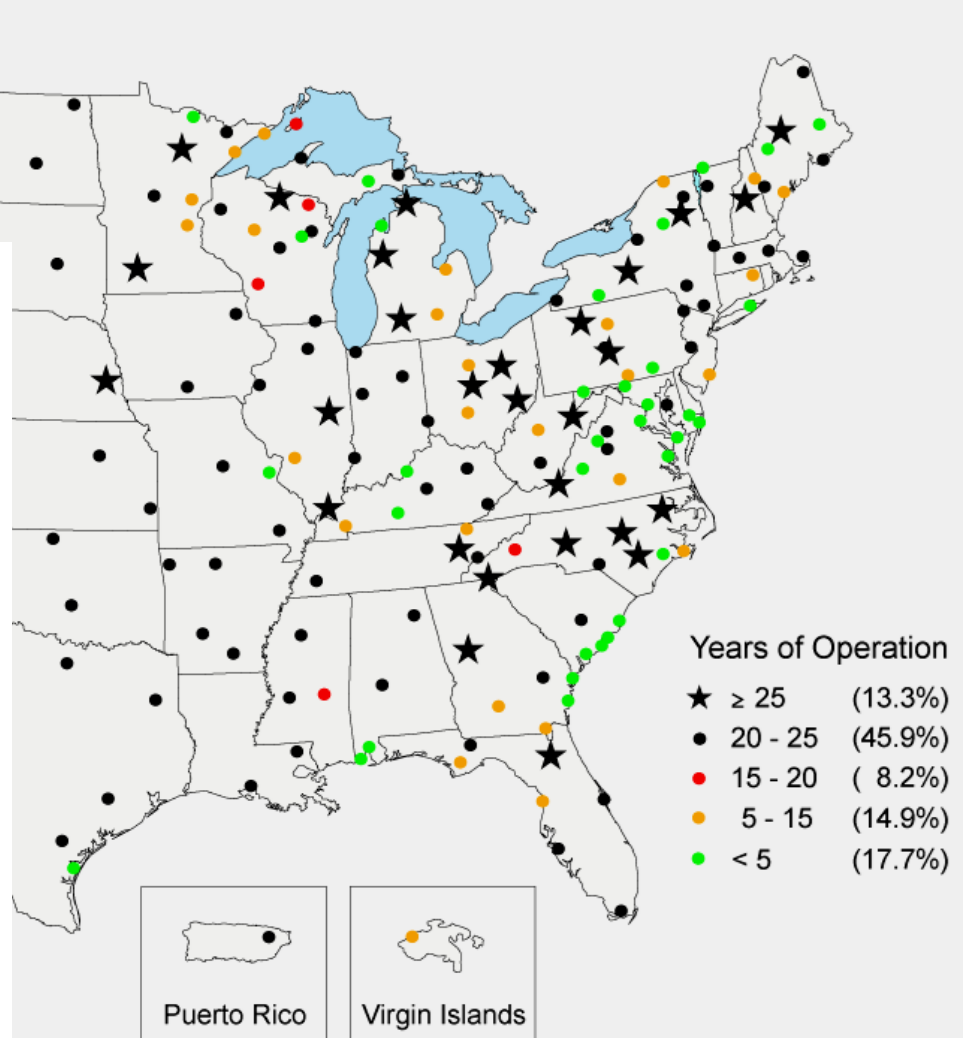
Nitrate

Ammonium

pH & Conductivity

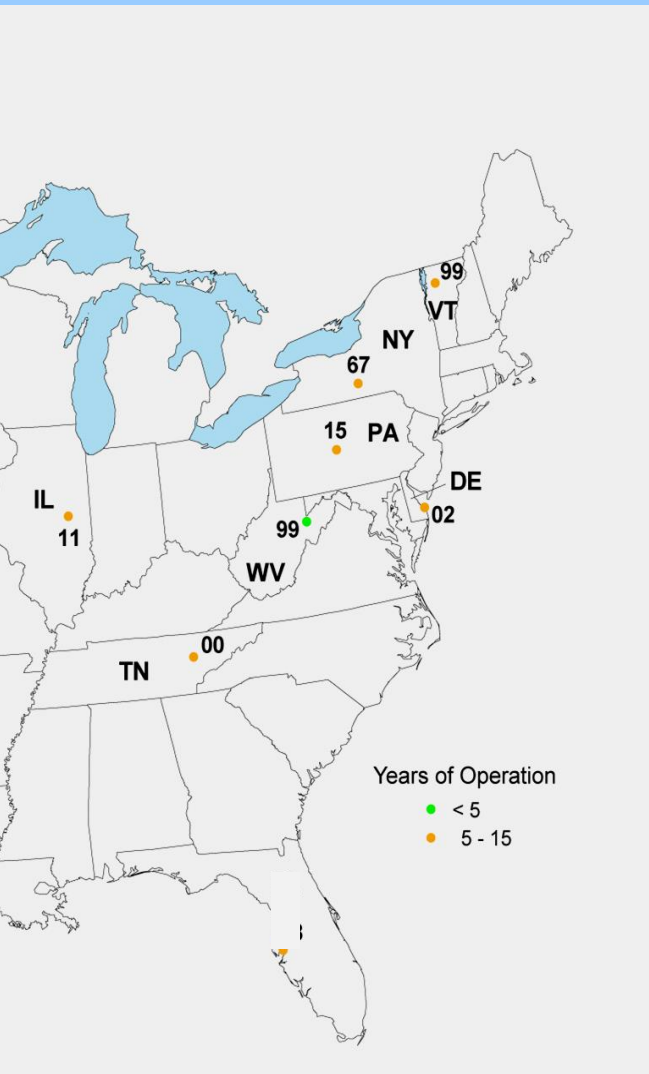
Na & Cl

Mg, K, Ca, P\*



257 sites + 3 “precision” sites

# Atmospheric Integrated Research Monitoring Network (AIRMoN)



Very similar to NTN, but collects daily when precipitation occurs



Measures precipitation with NWS “stick gage”

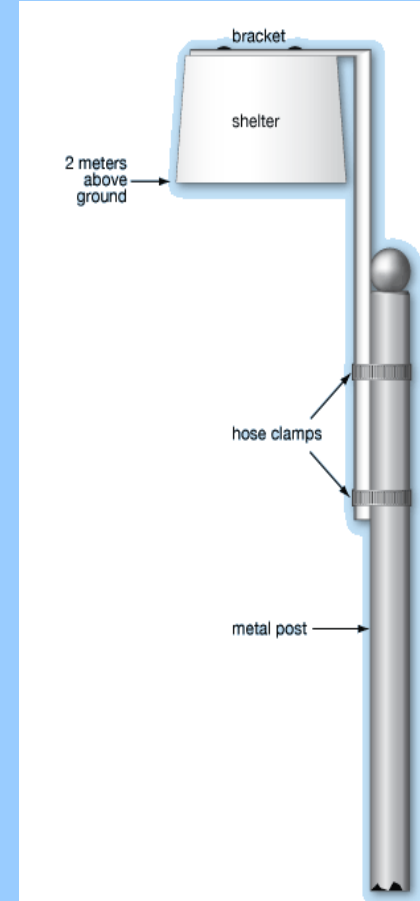
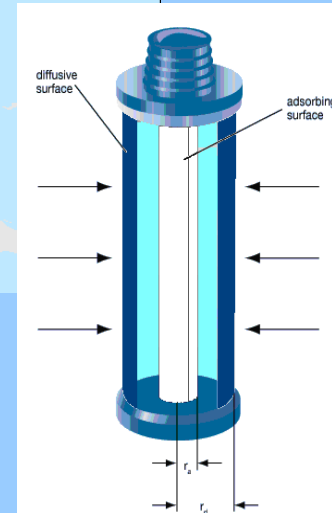
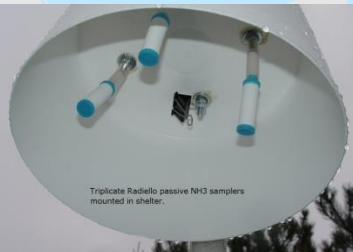
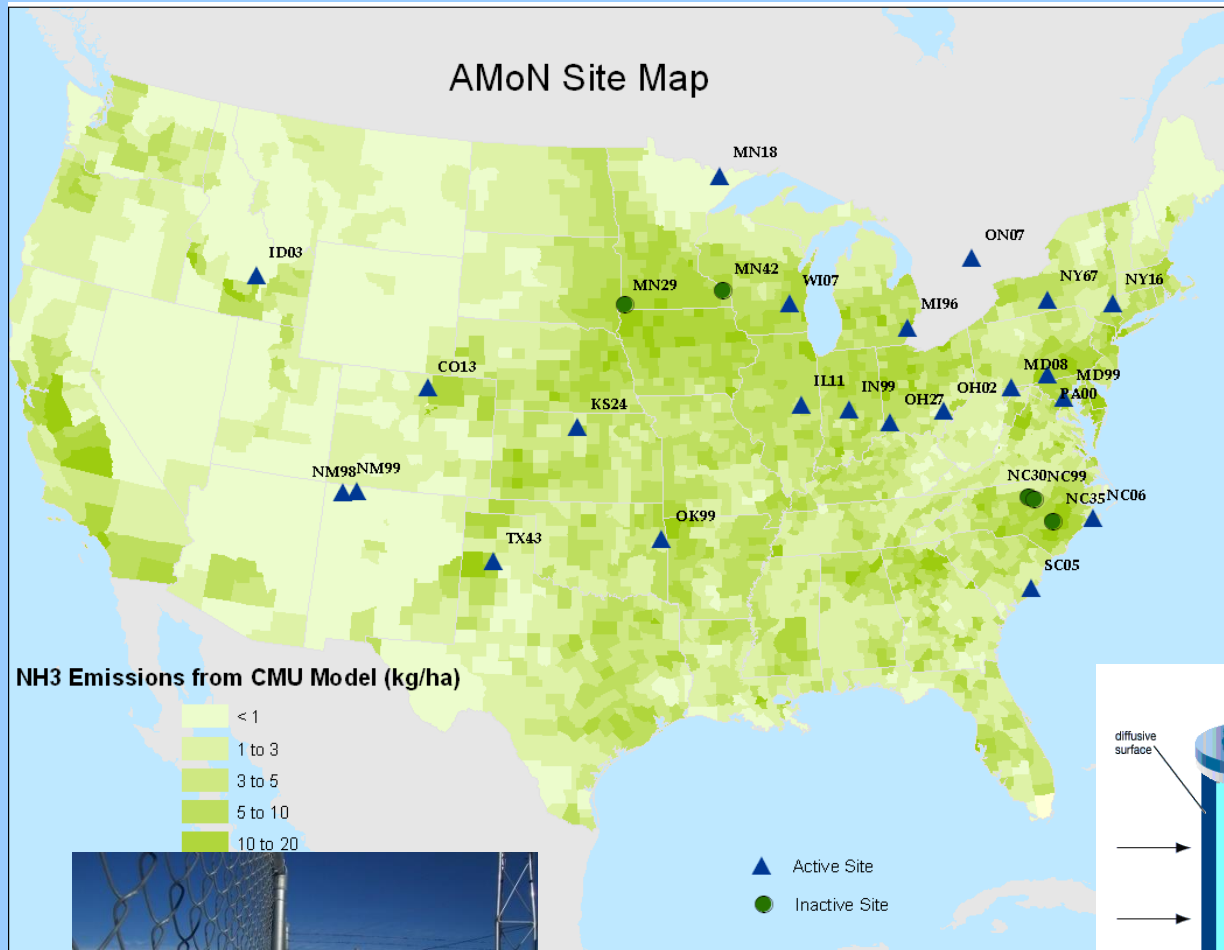


Measures same analytes as NTN

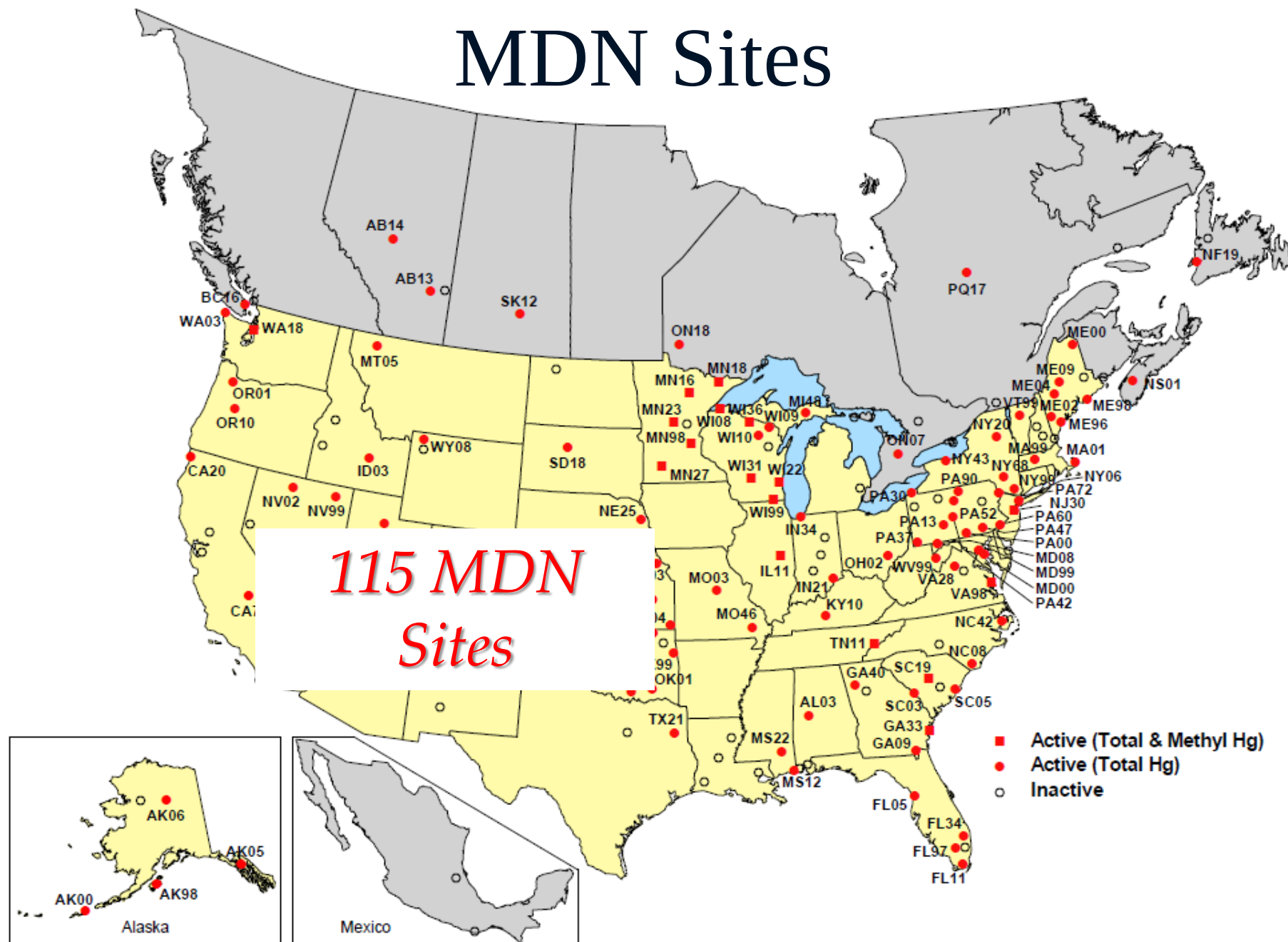


Samples refrigerated from collection until analysis

# New Ammonia Monitoring Network (AMoN)



# MDN Sites

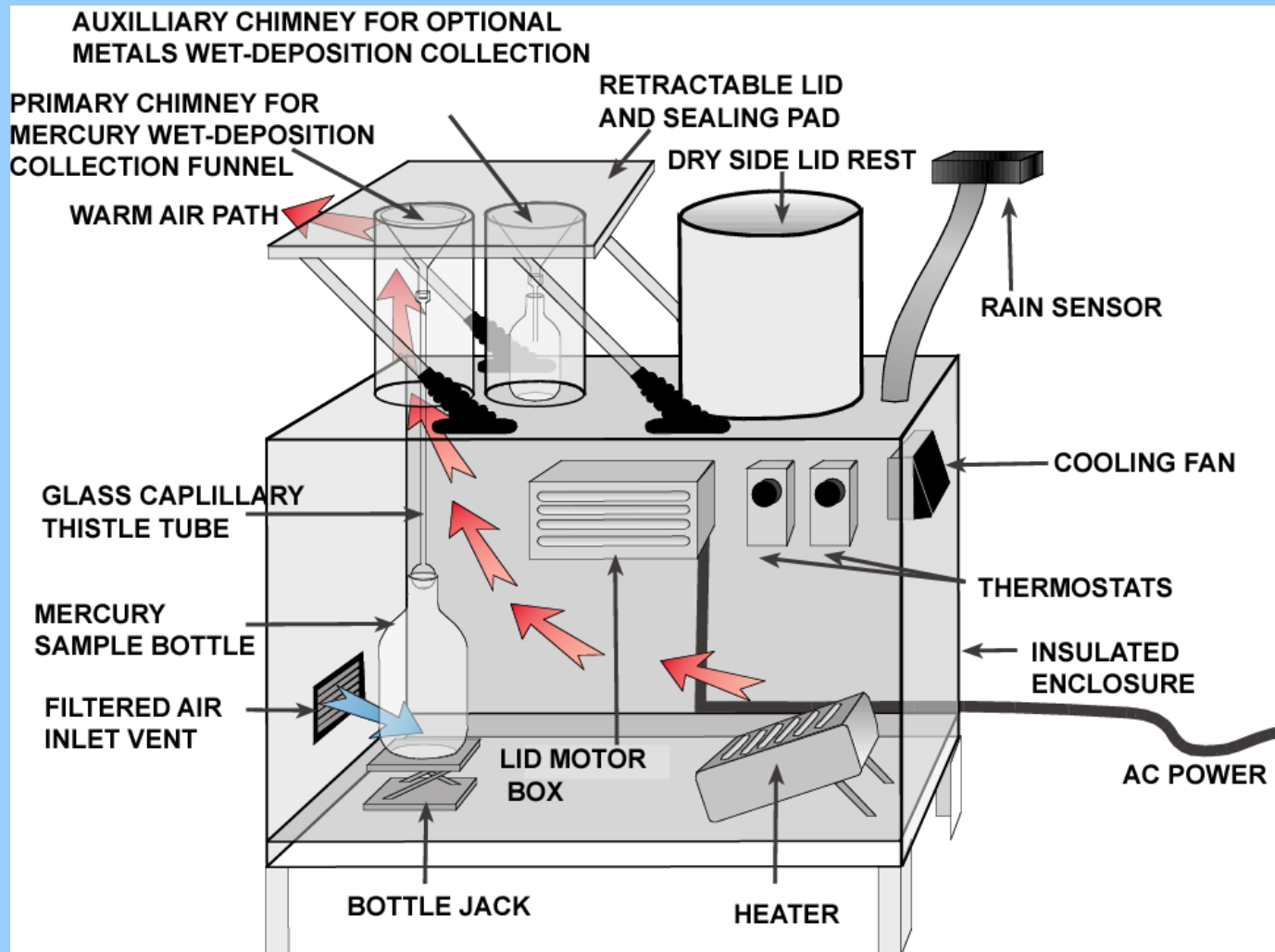


# Mercury Deposition Network (MDN)

- Collects one-week precipitation-only samples  
MDN wet-dry collector
- Measures precipitation with gage
- Analyses
  - Total Mercury
  - Methyl Mercury
  - Other options
- since 1996

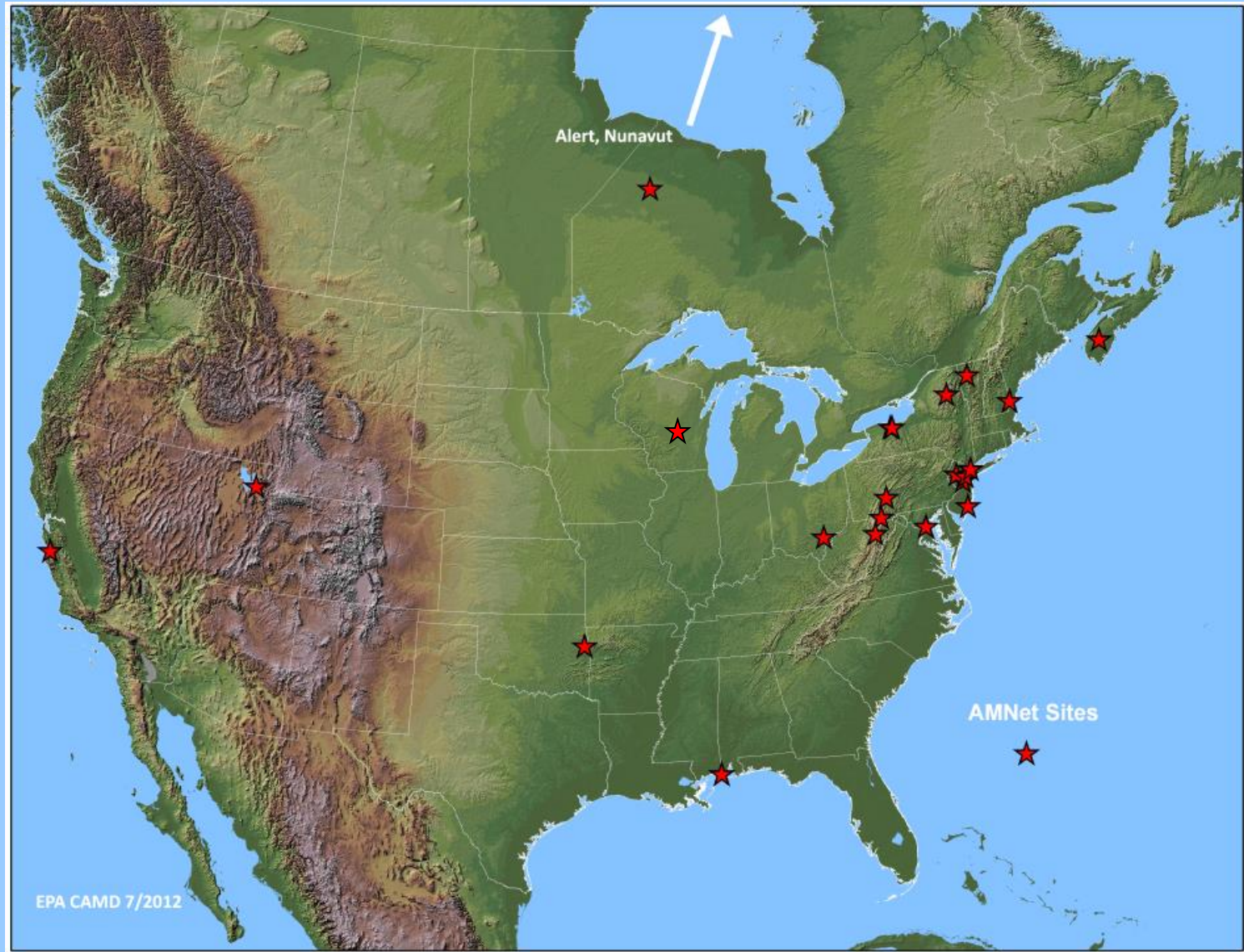


# Mercury Wet Deposition Collection



# Atmospheric Mercury Network (AMNet)

<http://nadp.isws.illinois.edu/amn/>



# AMNet Purpose

*Establish a North Am.  
atmospheric mercury speciation  
network for:*

- dry deposition estimates
- emission impact assessments
- model evaluation
- long-term trends

*Since 2009.*



# NADP – AMNet Mission and Goals

- To **coordinate**, quality-assure, store, and share existing and new atmospheric mercury data
- To measure a baseline of **total deposition** (dry and wet)
- To analyze **trends** in total (dry and wet) deposition over time and geographically
- To evaluate and improve predictive-**models**
- To provide data to scientists and policy makers so they may evaluate **regulations** for mercury emissions
- To stimulate, test, and incorporate **R & D**

# How Did We Get Here?

It was a network waiting to happen....

We activated/built a community of mercury scientists and instrument operators

Networked established monitoring sites

- based on common protocols
- field, data management, and QA

Most cost effective to leverage existing monitoring, when possible



# Why the NADP?

## **NADP has a 30+ year history**

- Consistent, scientifically credible, long-term monitoring

## **NADP offers a participatory framework**

- Multiple partners
- Coordinates network activities of all

## **NADP provides a high level of transparency**

- High quality data
- Public data available
- Consistent network decisions (committee driven)



# AMNet Measurements

Wet deposition flux (MDN)

Mercury speciation

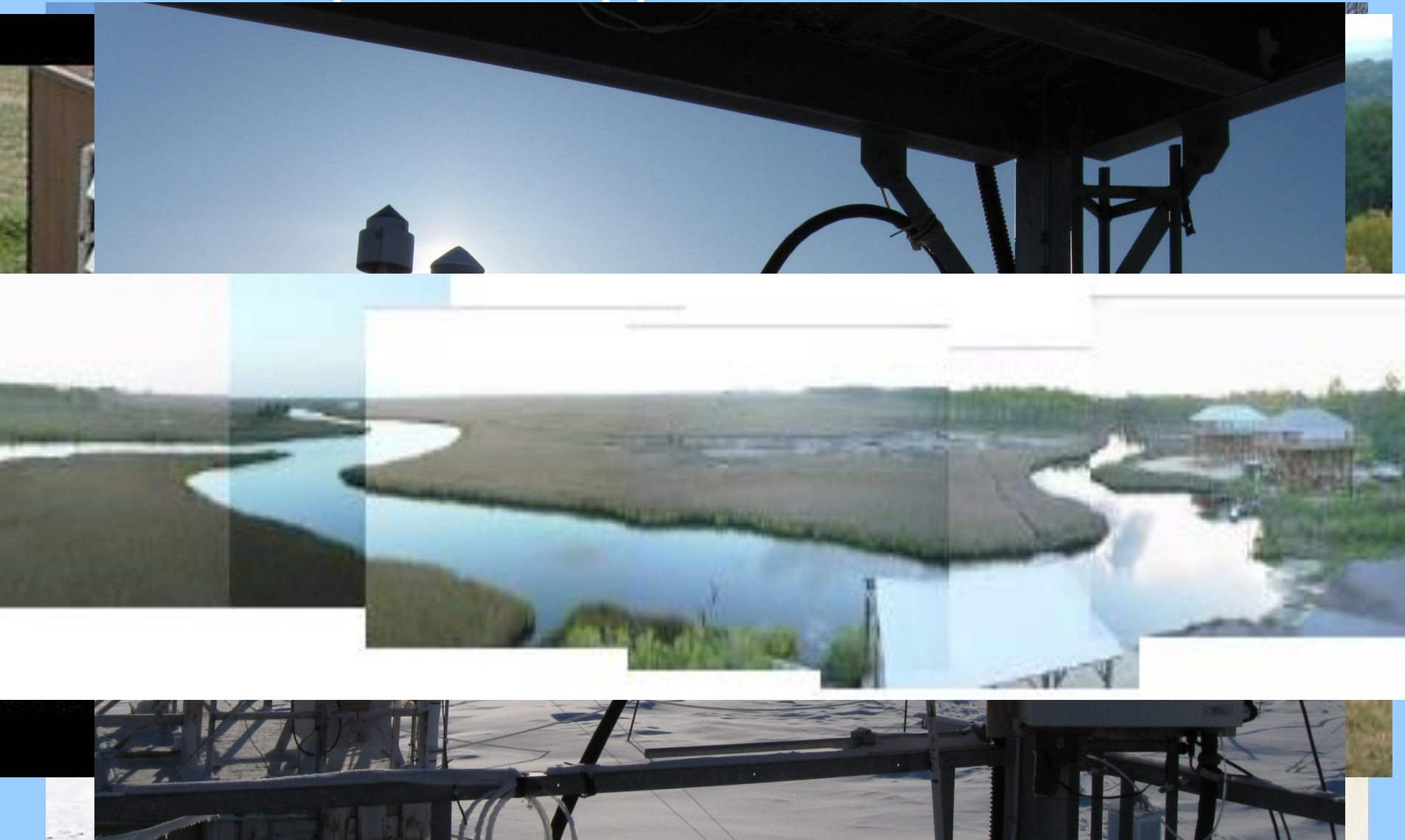
- elemental, reactive gaseous, particulate

Land cover variables

- estimate of dry deposition flux



# Operating AMNet Sites



# AMNet Documents

## Available on the NADP Webpage

- Field Operations SOP
- Data Management SOP
- Site Survey SOP
- Siting Criteria
- Quality Assurance Plan



# AMNet Site Liaison

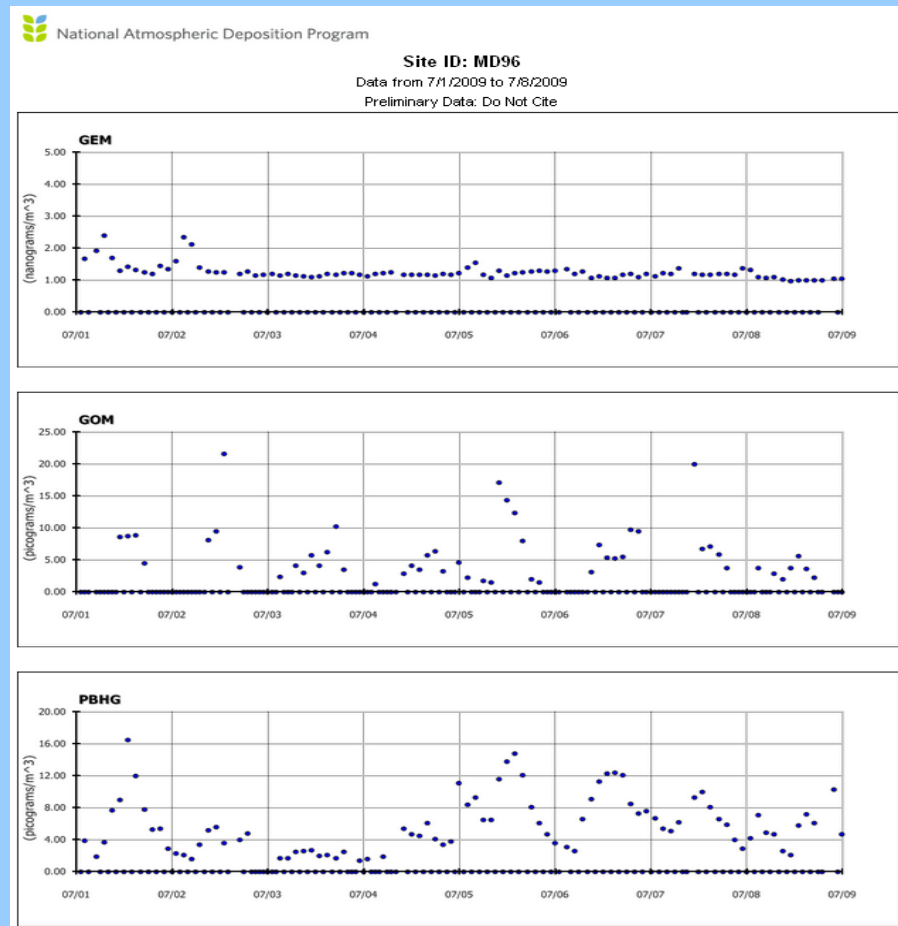
## USGS Site Support

- Help all sites operate correctly
- Harmonize methods over network
- Keep network running
- Data Review

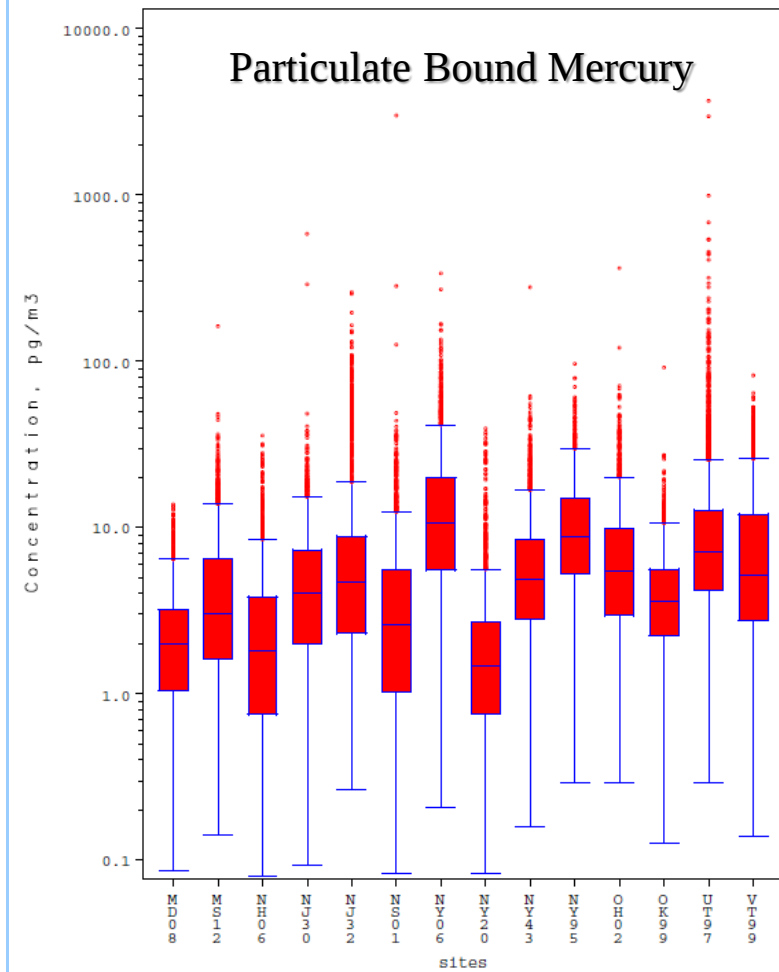
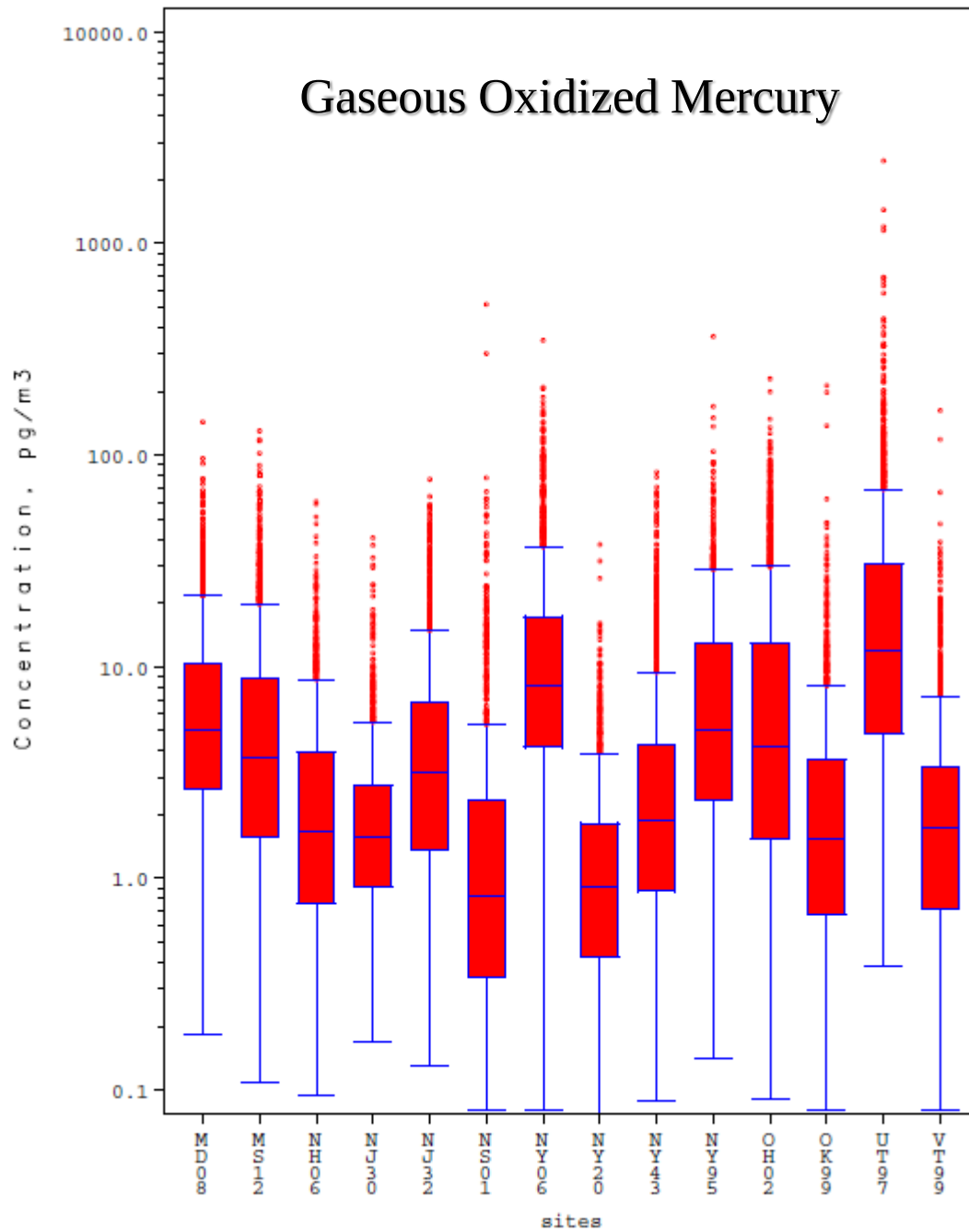


# NADP AMNet Data Products

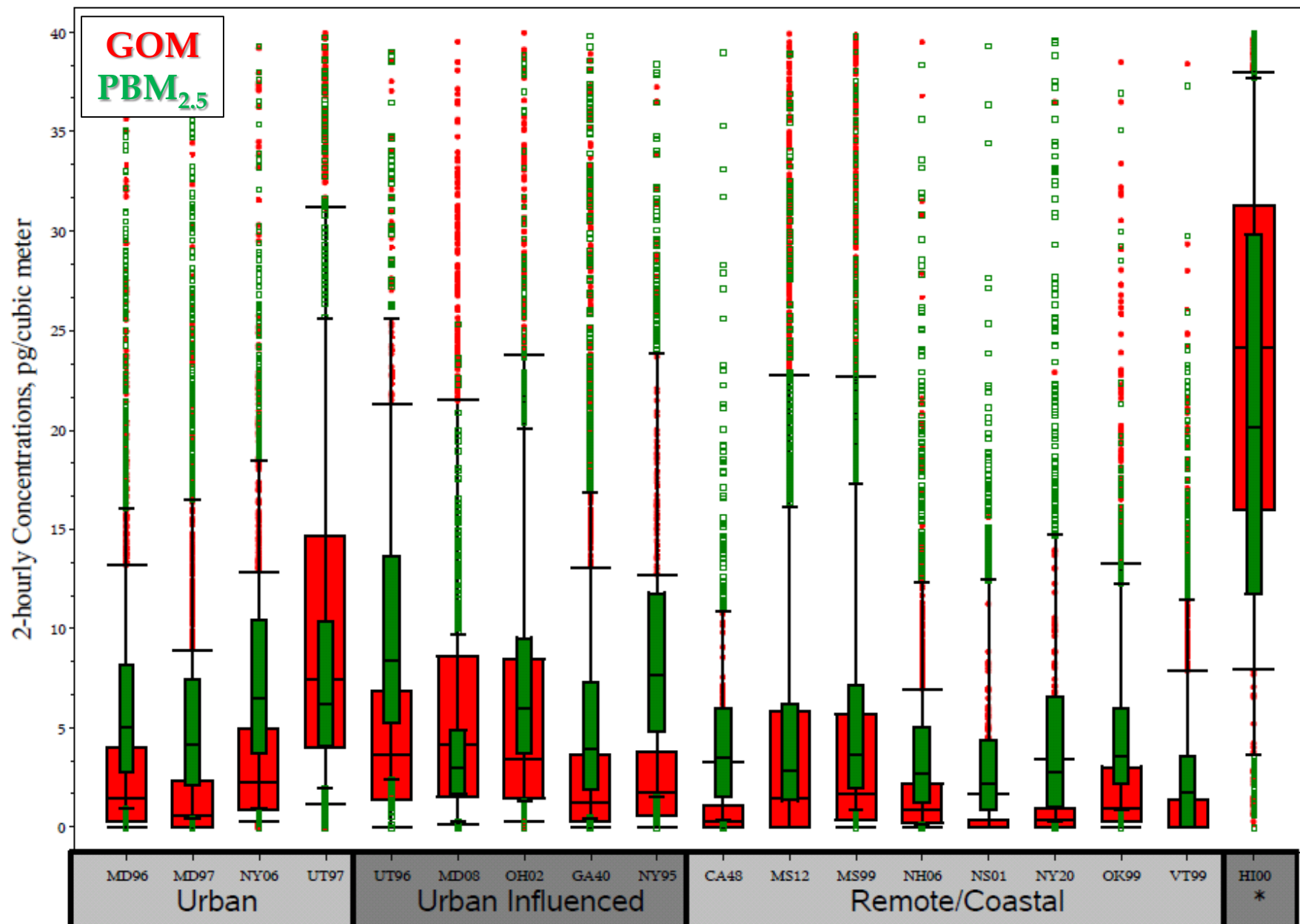
- Mercury speciation data tables and graphs
  - Available now (*password*)
- Data summary
  - 20 sites reporting data
  - 65 site years of data  
on the web (265,000 obs.)
  - Hourly and 2-hourly GEM
  - 2 hourly GOM and PBM25
- All data QA'ed



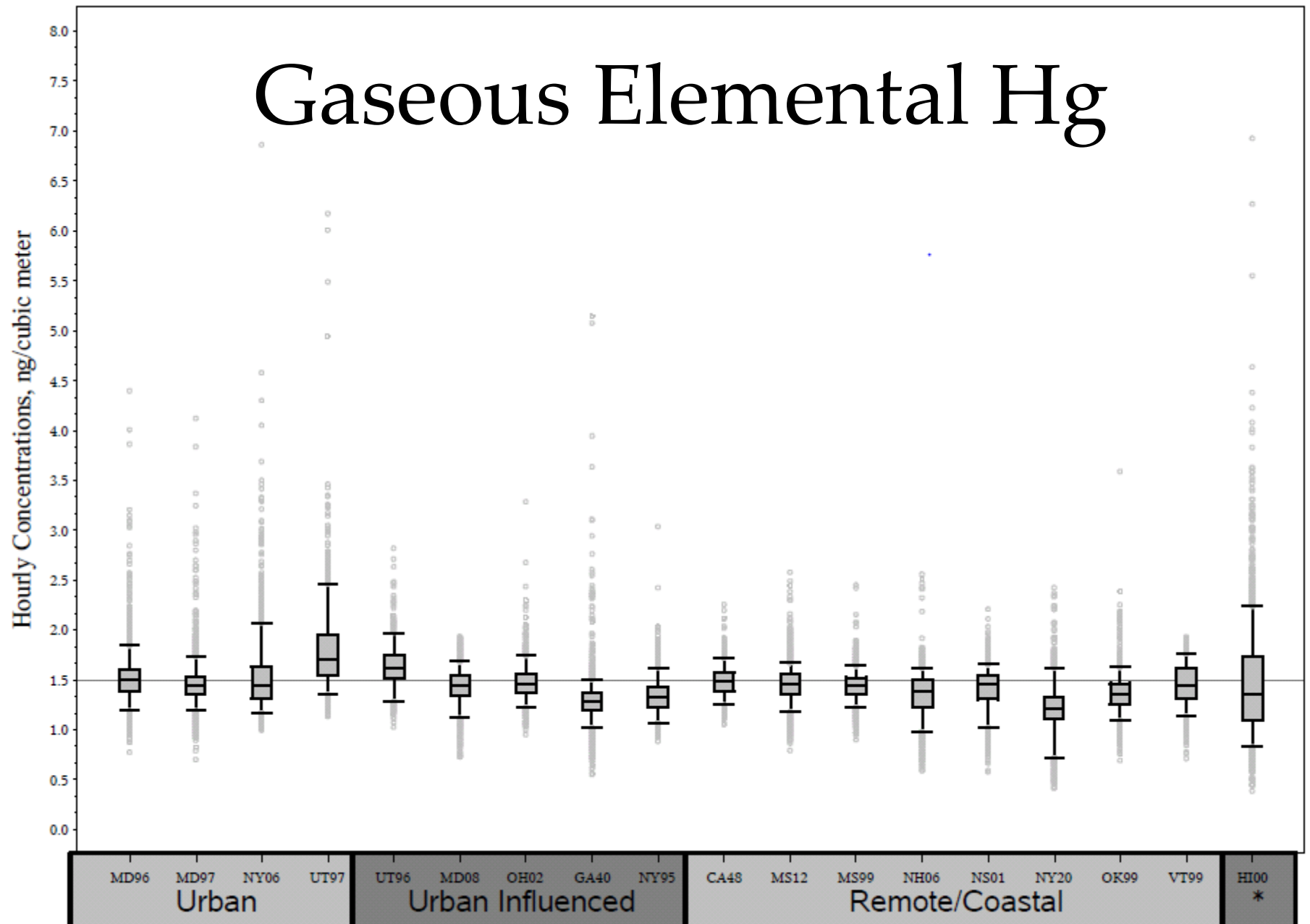
# Observations



# Particulate Bound and Oxidized Hg



# Gaseous Elemental Hg



# Keys to our Success

1. Consistent operating methods
2. Good operators
3. Sharing of data
4. Diversified Funding
5. Cooperation
6. Commitment to long term monitoring
  - federal agencies
  - state agencies
  - other





National Atmospheric  
Deposition Program

# What is the NADP?