

Monitoring Trends Analysis

--- 2019 ---



Four Corners Air Quality Group Meeting

Durango, CO

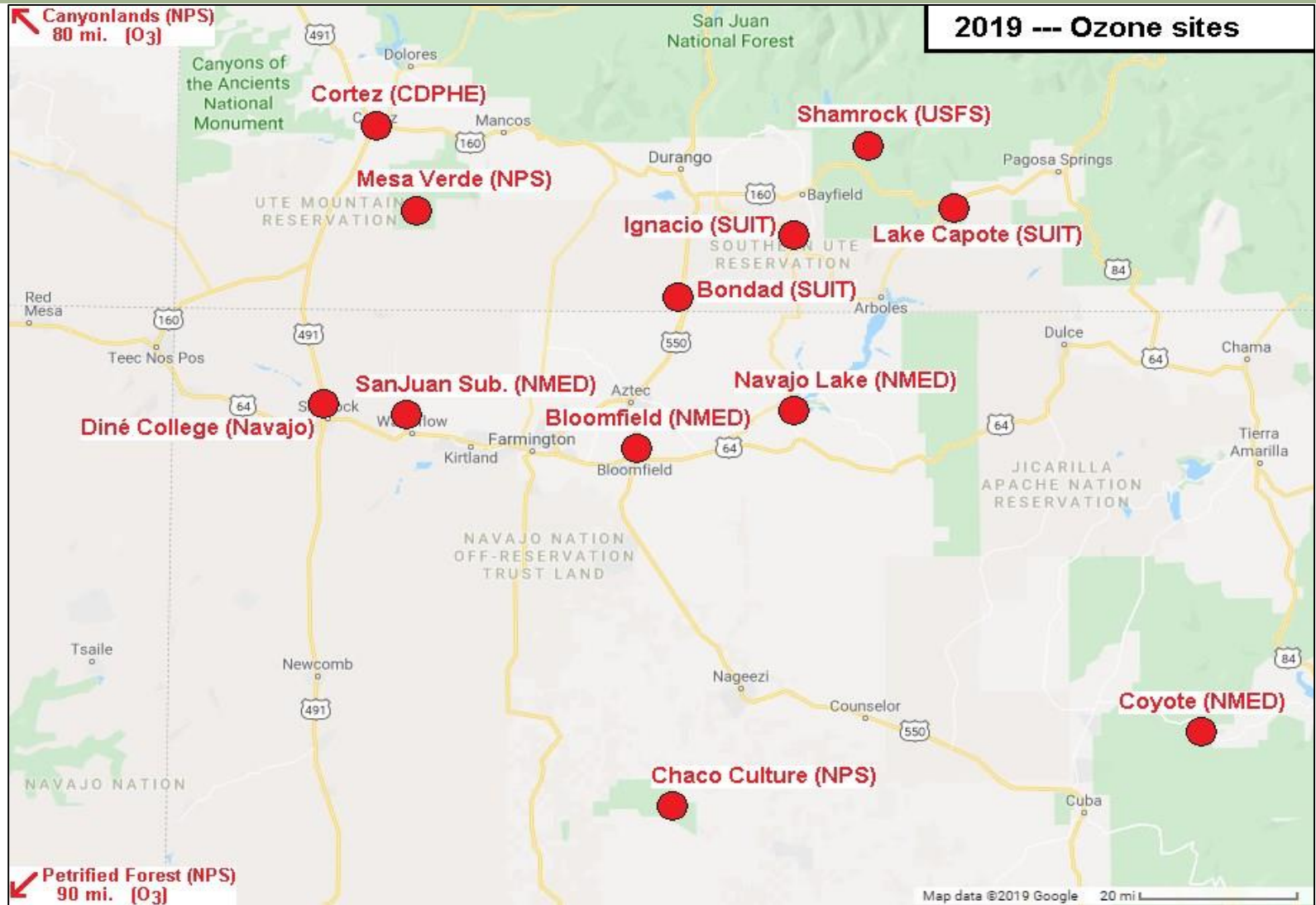
October 23, 2019

- Mark Jones and Lisa Devore
- New Mexico Environment Department & Colorado Department of Public Health and Environment



COLORADO
Department of Public
Health & Environment

Ozone Monitoring Sites in the Four Corners Area



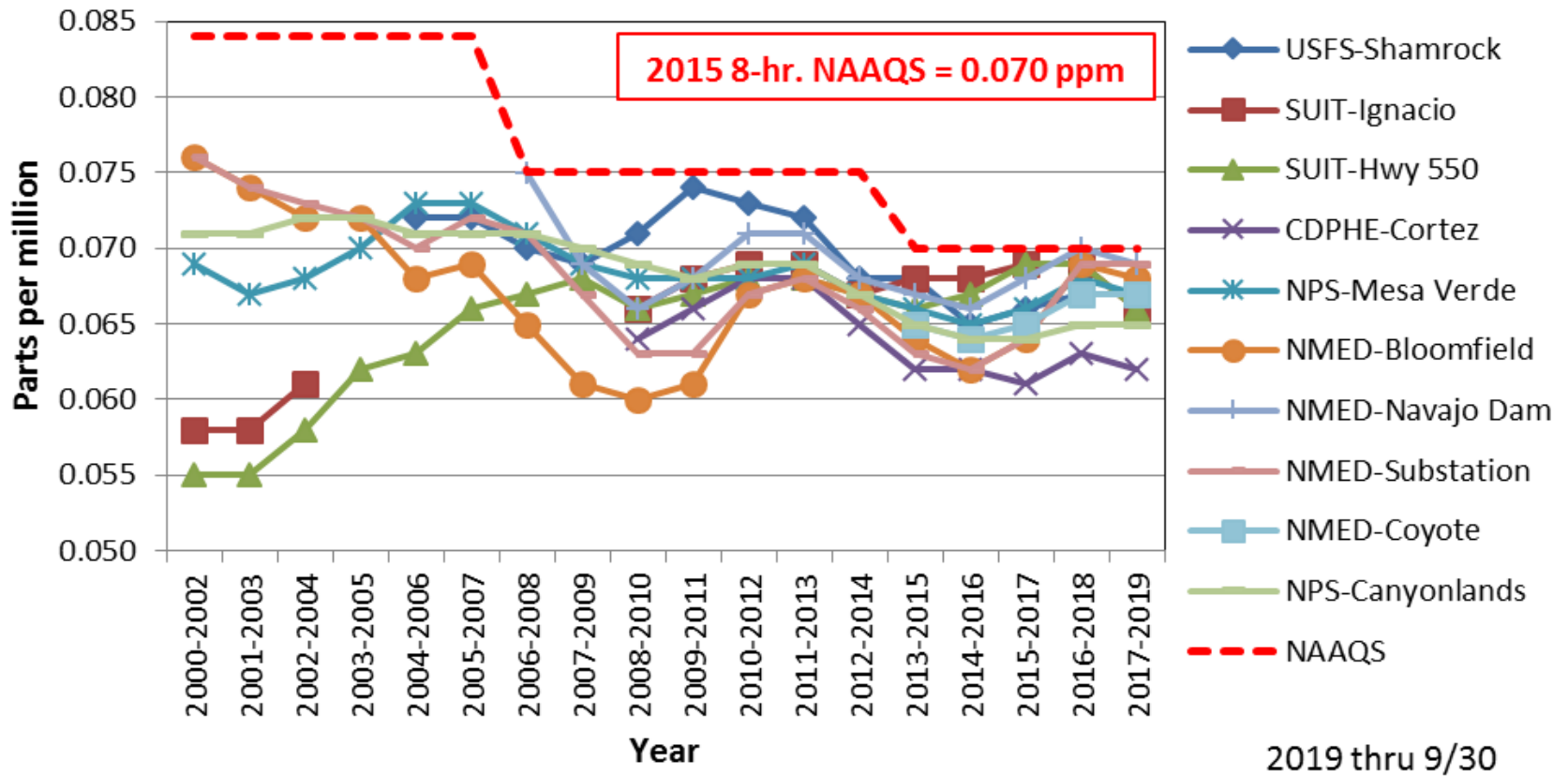
3-Year Average 4th Maximum 8-Hour Ozone Values

*** 2019 data through September 30 ***

DRAFT DATA for 2019

Site Name	AQS #	2017	2018	2019	2017-2019 3-yr Avg 4th Max Value (ppm)	2020 Highest 4th Max to not exceed 0.070 NAAQS (ppm)
		8-hr O3 4th Max Value (ppm)	8-hr O3 4th Max Value (ppm)	8-hr O3 4th Max Value (ppm)		
COLORADO						
SUIT - Lake Capote	08-007-7004	0.063	0.065	0.064	0.064	0.083
USFS - Shamrock	08-067-1004	0.066	0.071	---	---	---
SUIT - Ignacio	08-067-7001	0.069	0.067	0.063	0.066	0.082
SUIT - Hwy 550	08-067-7003	0.069	0.067	0.063	0.066	0.082
CDPHE - Cortez	08-083-0006	0.059	0.067	0.060	0.062	0.085
NPS - Mesa Verde	08-083-0101	0.066	0.072	0.065	0.067	0.075
NEW MEXICO						
NMED - Coyote	35-037-0026	0.070	0.070	0.061	0.067	0.081
NMED - Bloomfield	35-045-0009	0.068	0.074	0.062	0.068	0.076
NMED - Navajo Dam	35-045-0018	0.069	0.074	0.064	0.069	0.074
NPS - Chaco Culture	35-045-0020	0.064	0.068	0.065	0.065	0.079
NMED - Substation	35-045-1005	0.071	0.074	0.064	0.069	0.074
Navajo - Dine College	35-045-1233	0.061	0.069	---	---	---
ARIZONA						
NPS - Petrified Forest	04-017-0119	0.065	0.069	0.066	0.066	0.077
UTAH						
NPS - Canyonlands	49-037-0101	0.064	0.068	0.064	0.065	0.080

8-Hour Ozone --- 3-year Avg. of 4th Max.



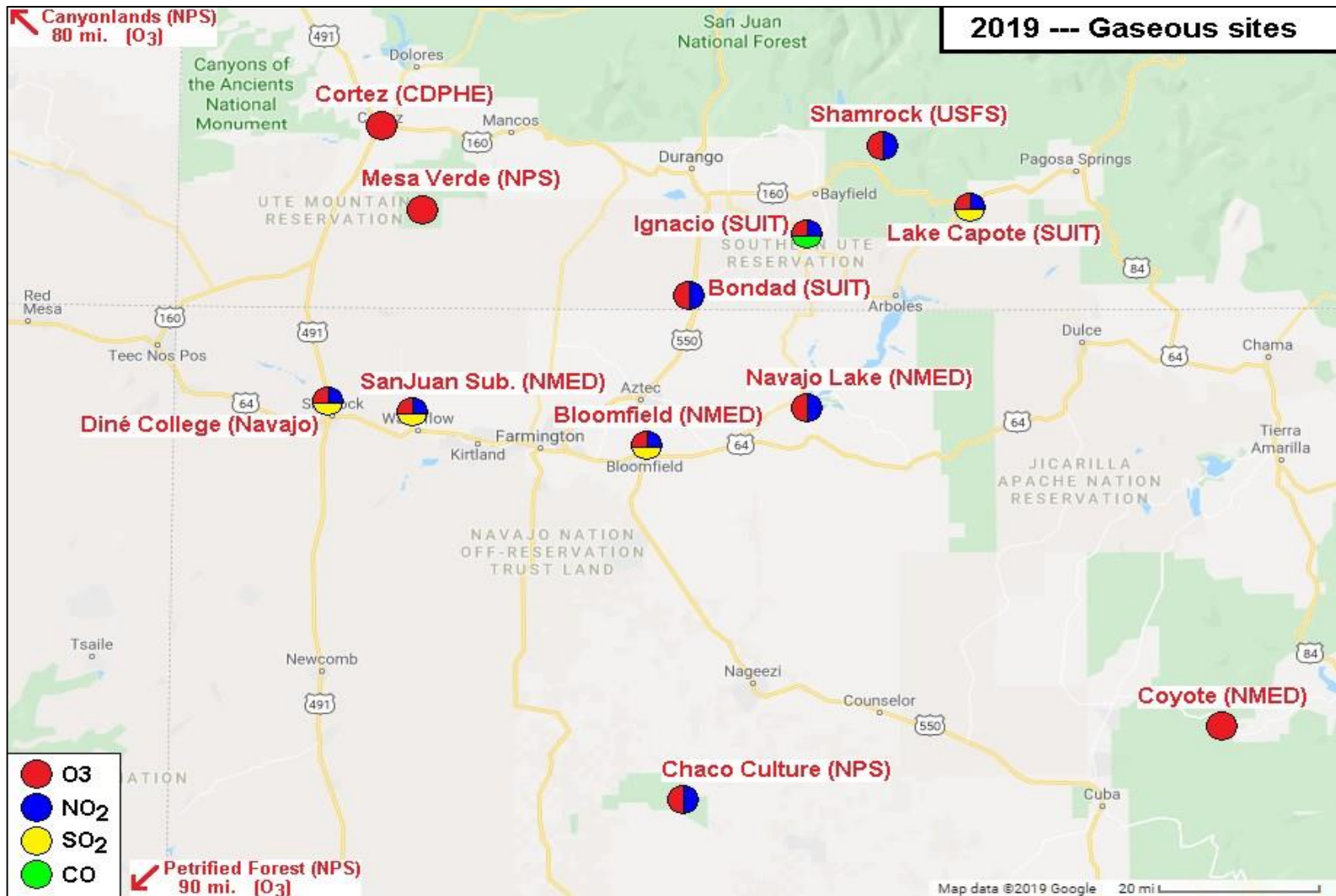
All sites below the current NAAQS

Other Air Monitoring in the Four-Corners Area (Non-Ozone)

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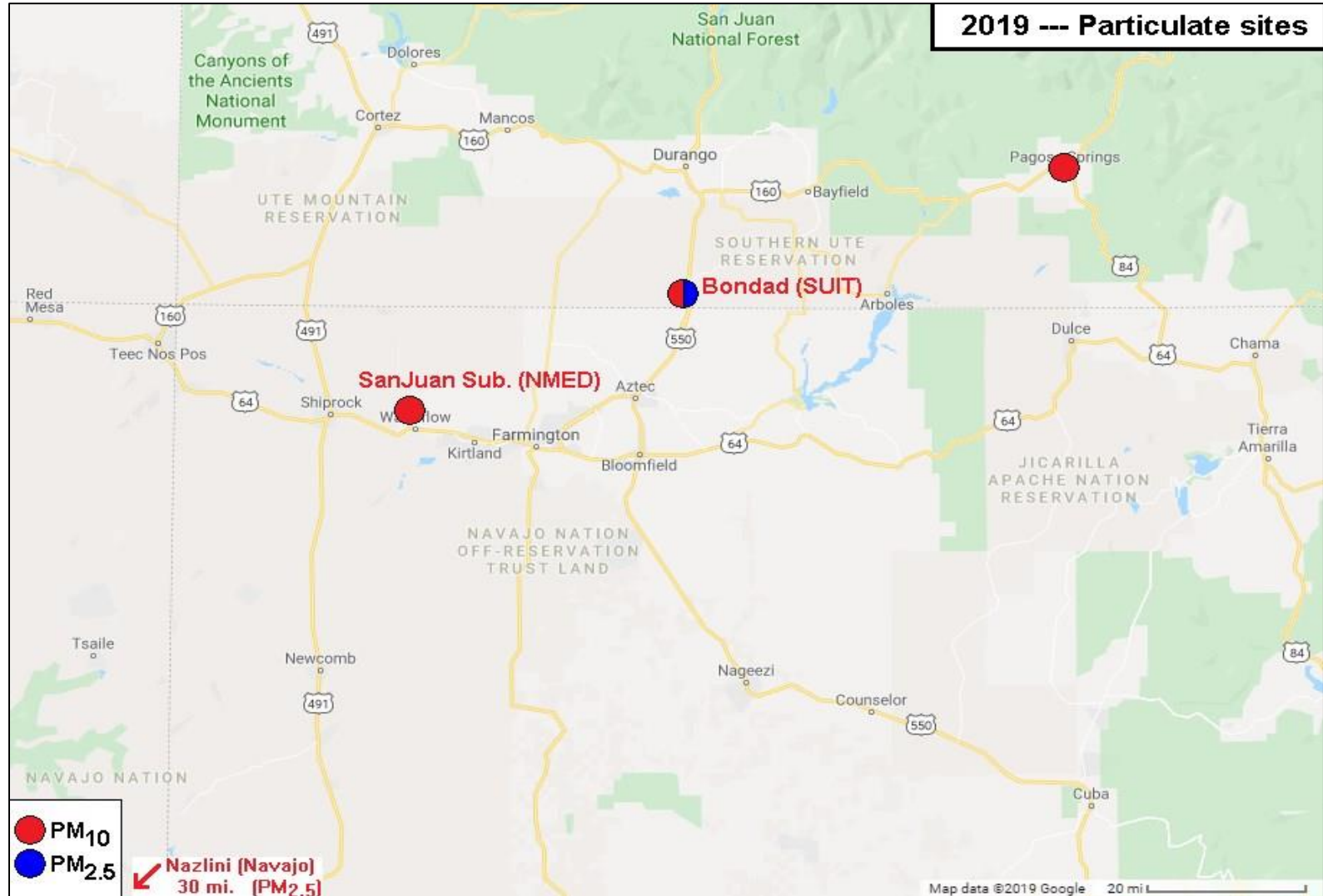
- Particulates – CDPHE, NMED, USFS, SUIT, Navajo
- Oxides of Nitrogen – NMED, USFS/BLM, SUIT, Navajo
- Sulfur Dioxide – SUIT, Navajo, NMED
- Carbon Monoxide – SUIT
- Ions (nitrate, sulfate, ammonium) – NPS, USFS
- Ammonia – NMED/EPA
- Visibility – USFS, NPS, SUIT
- Mercury – USFS, NPS, NMED
- Meteorology – NMED, USFS/BLM, NPS, SUIT, Navajo
- VOC/NMOC – SUIT

Gaseous Monitoring Sites in the Four Corners Area

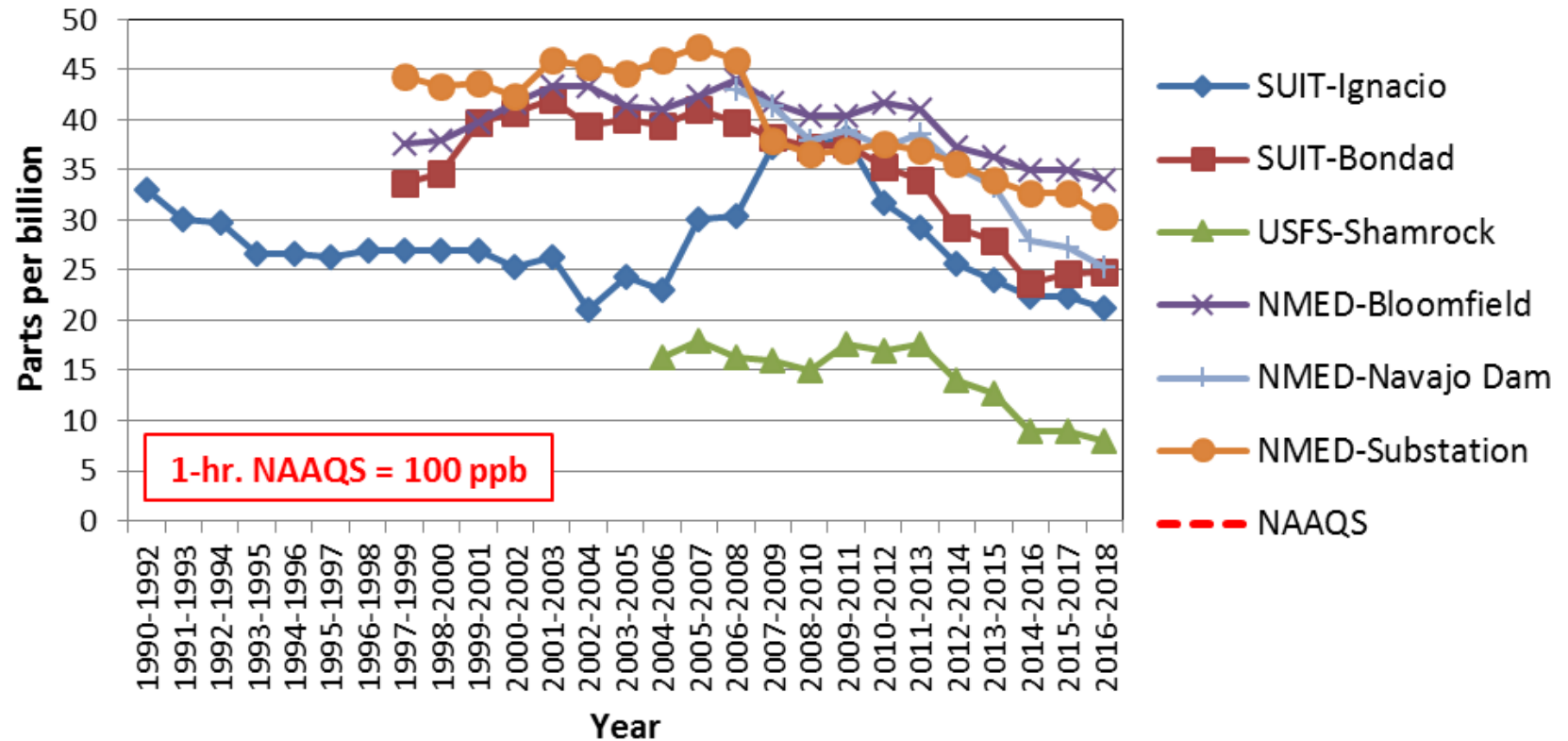


Particulate Monitoring Sites in the Four Corners Area

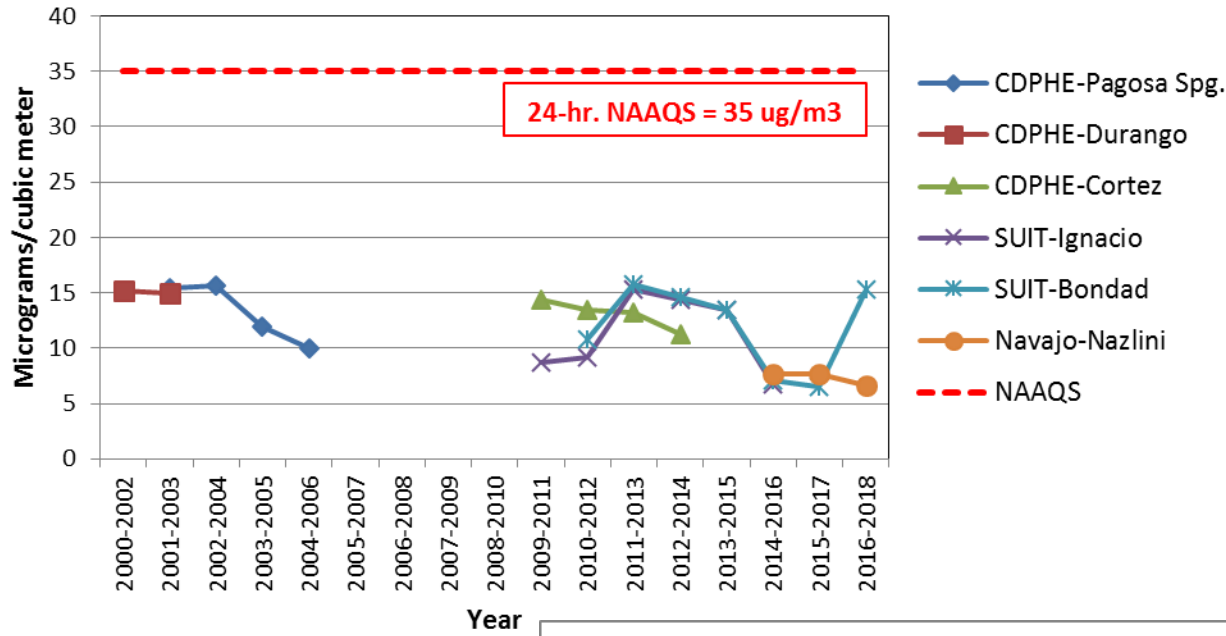
7



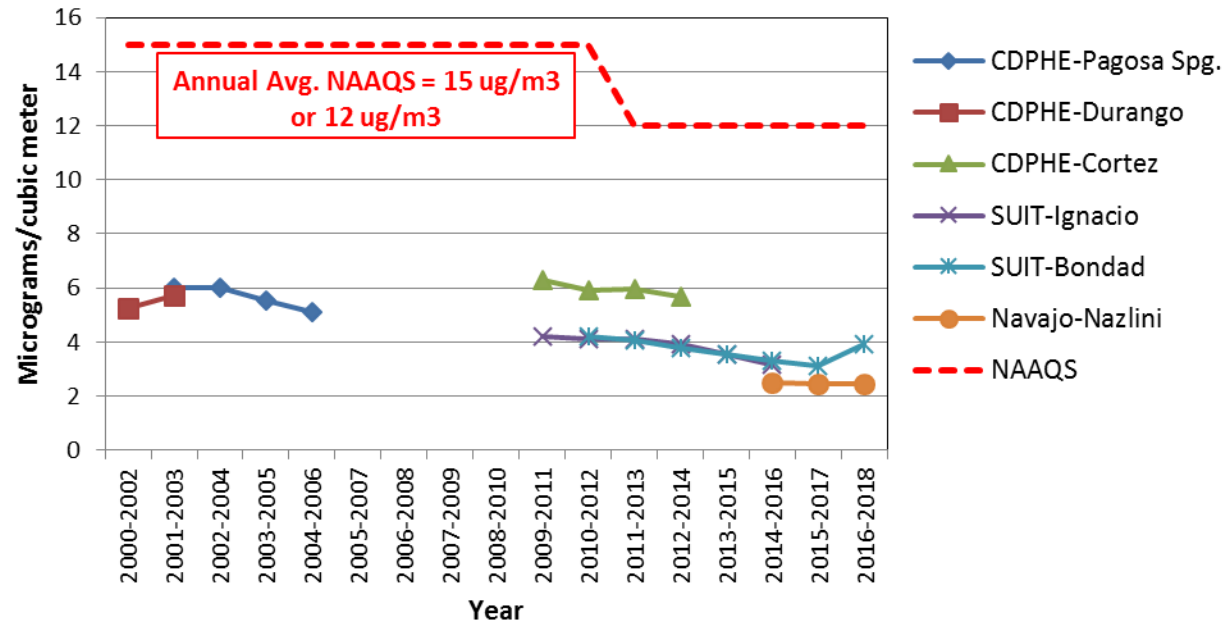
1-Hour Nitrogen Dioxide --- 3-Yr. Avg. of 98th Percentile ---



24-Hour PM2.5 --- 3-Yr. Avg. 98th Percentile



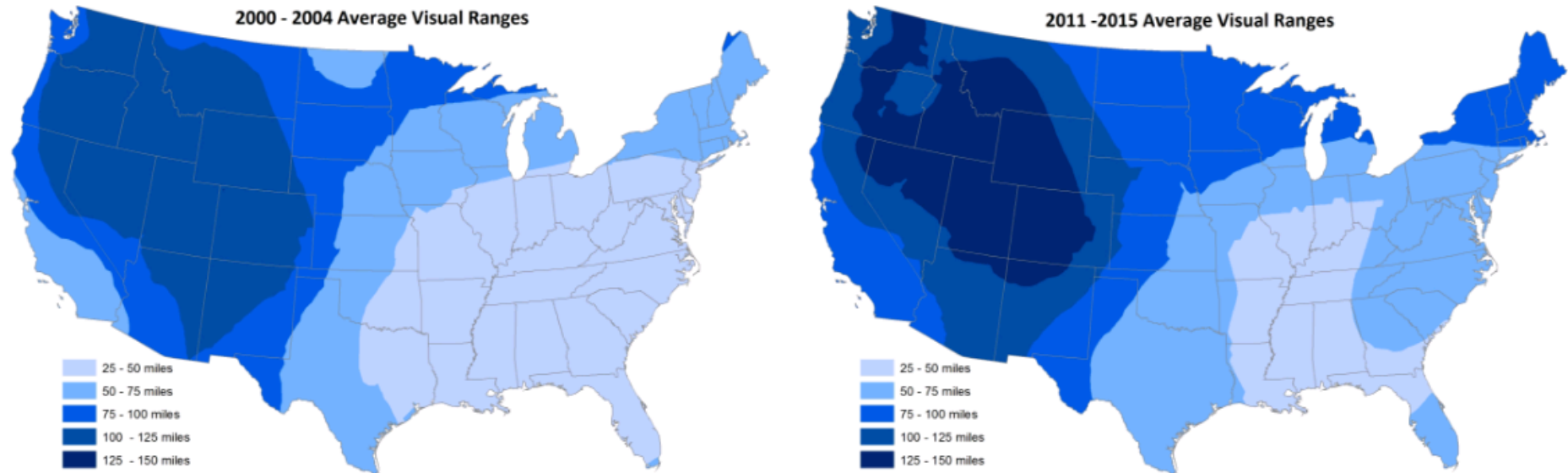
3-Yr. Avg. Annual Average PM2.5



Visibility

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- Nephelometer data at SUIT-Bondad site
- Webcam at Mesa Verde National Park
- IMPROVE data at three regional locations
 - ▣ Mesa Verde, Shamrock Mine, Weminuche
- Significant visibility improvements at Mesa Verde and in the Weminuche Wilderness (since Regional Haze implementation period began)
- Analysis for more reductions underway under 2nd implementation period of Regional Haze Rule



Courtesy: EPA

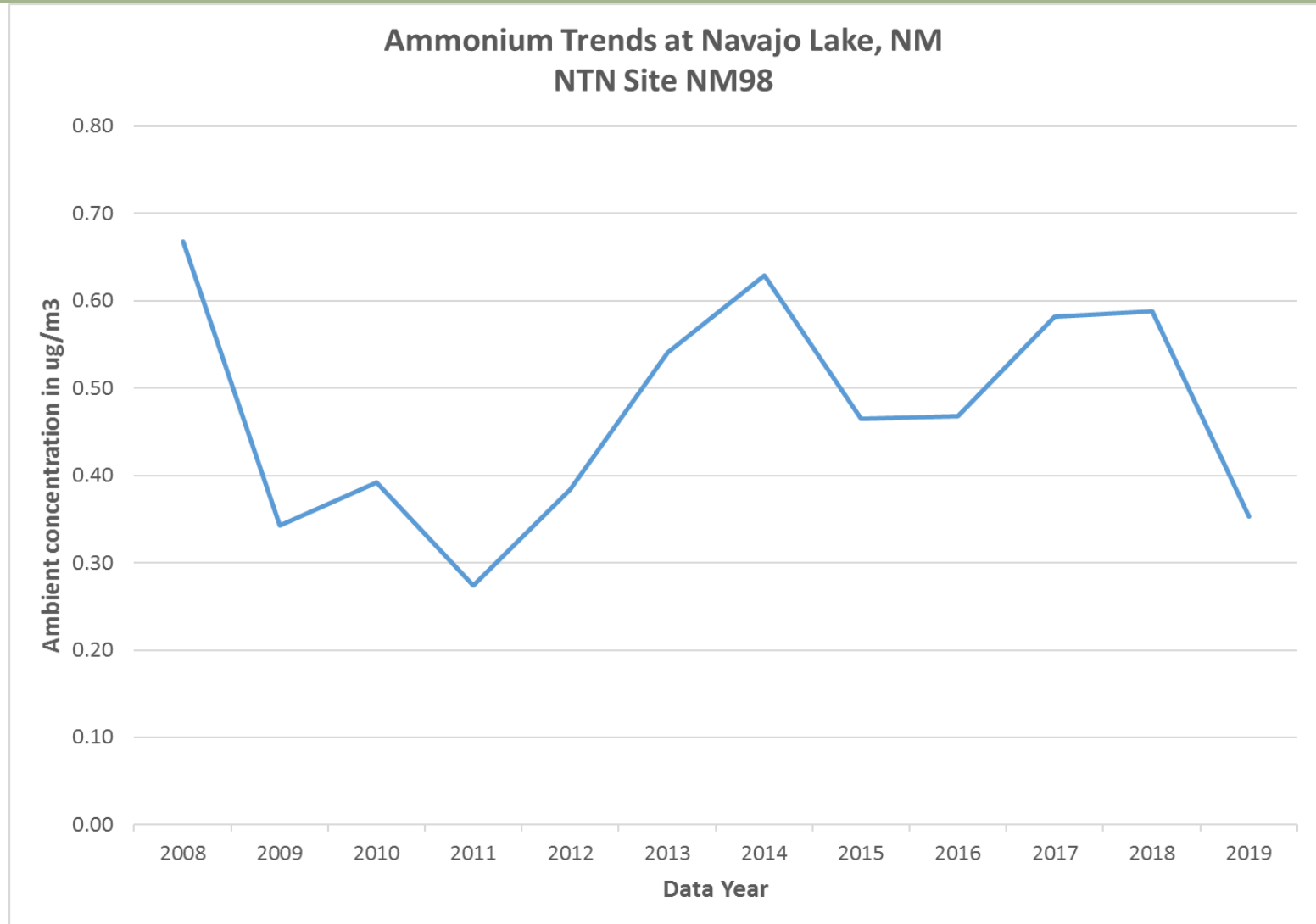
Ammonia

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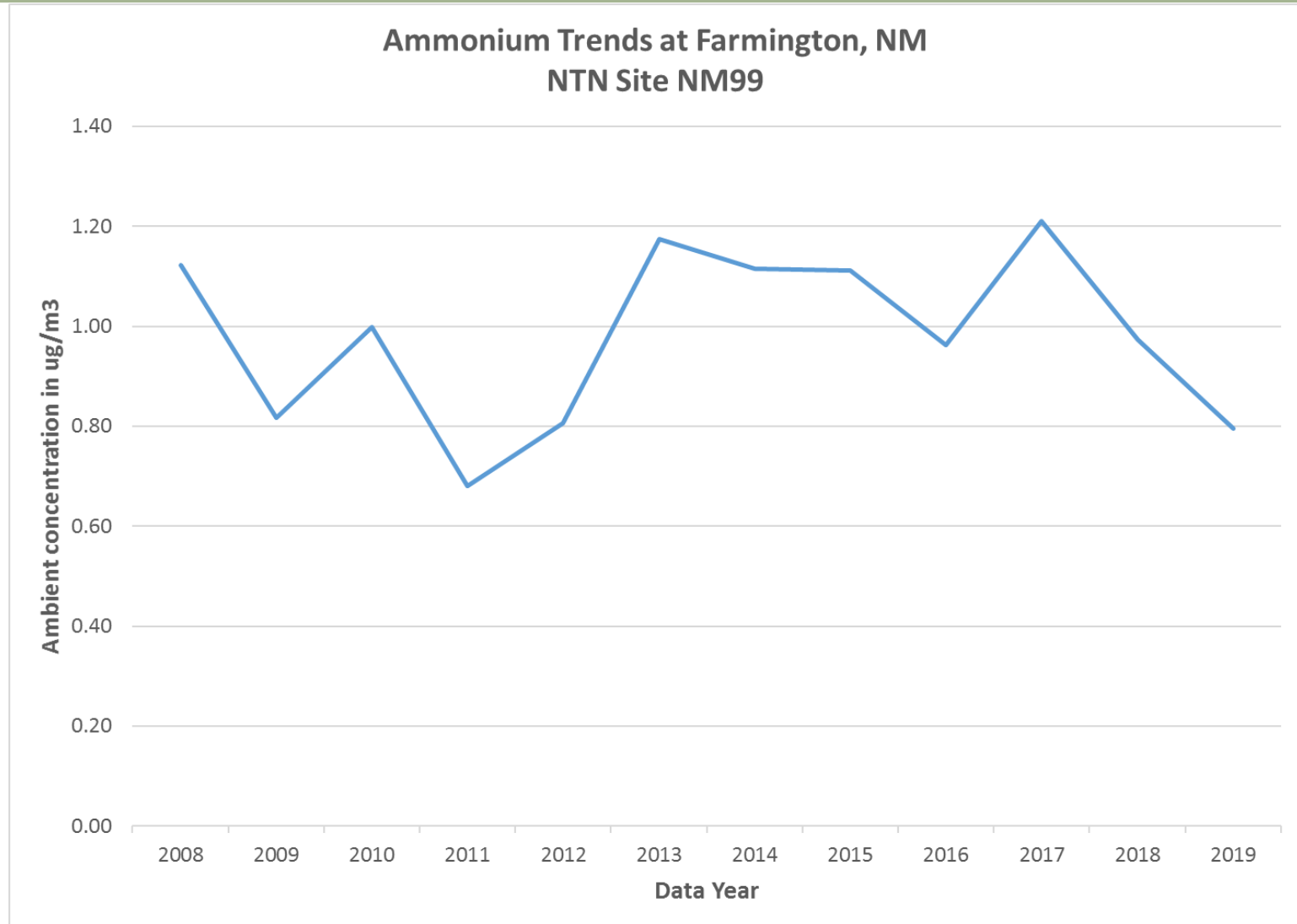
Ammonia

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Ammonia

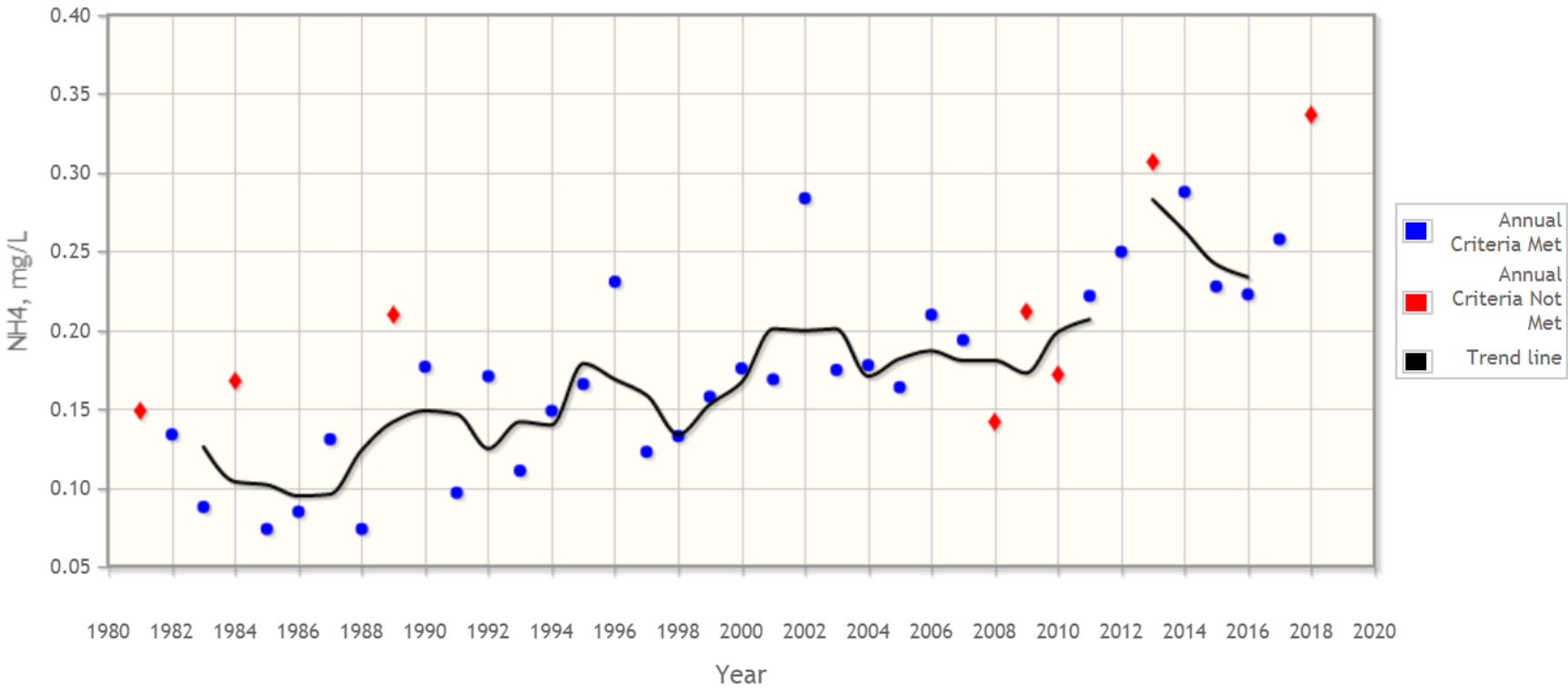
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Ammonium Trends at Mesa Verde National Park



NTN Site CO99



Increasing trend over time

Data obtained from National Atmospheric Deposition Program:

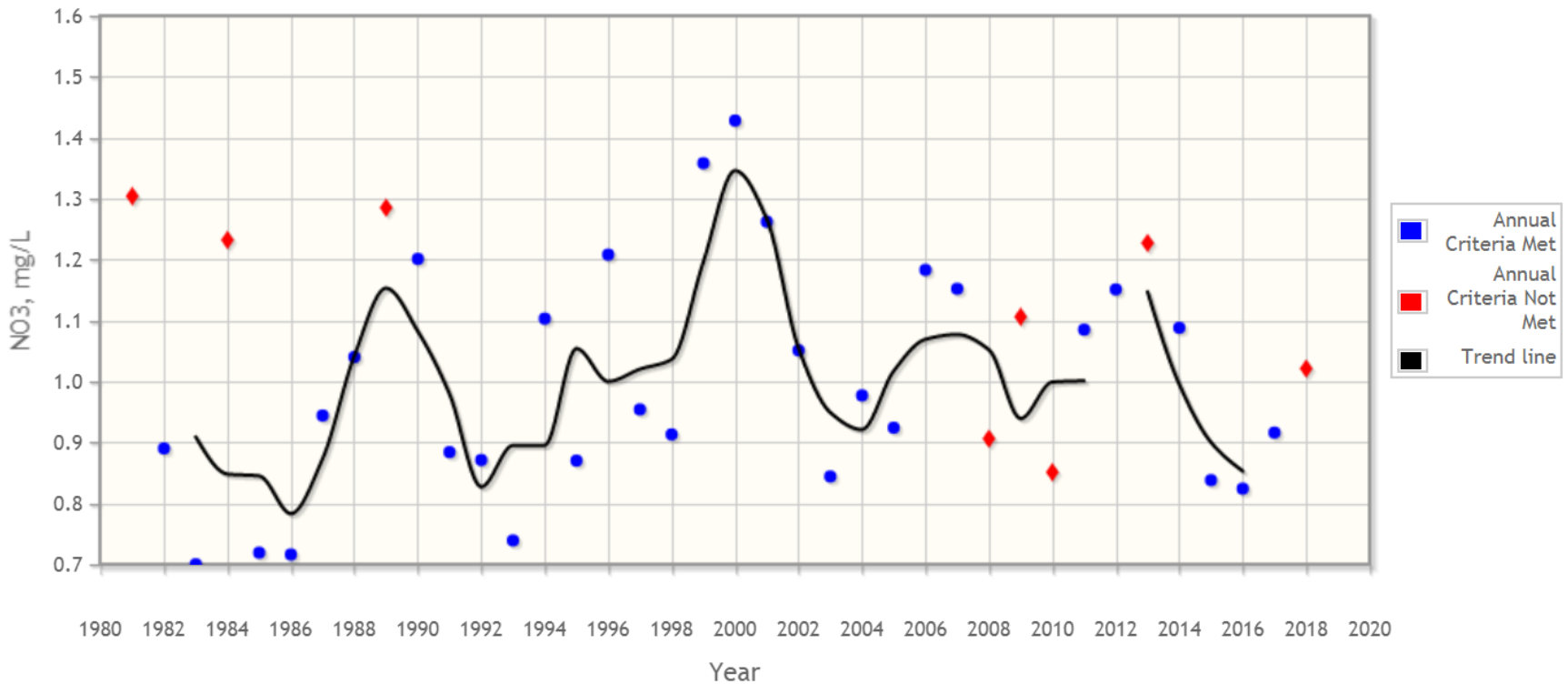
<http://nadp.slh.wisc.edu/ntn/>

Nitrate Trends at Mesa Verde National Park

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NTN Site C099



No recent trend

Data compiled from National Atmospheric Deposition Program:

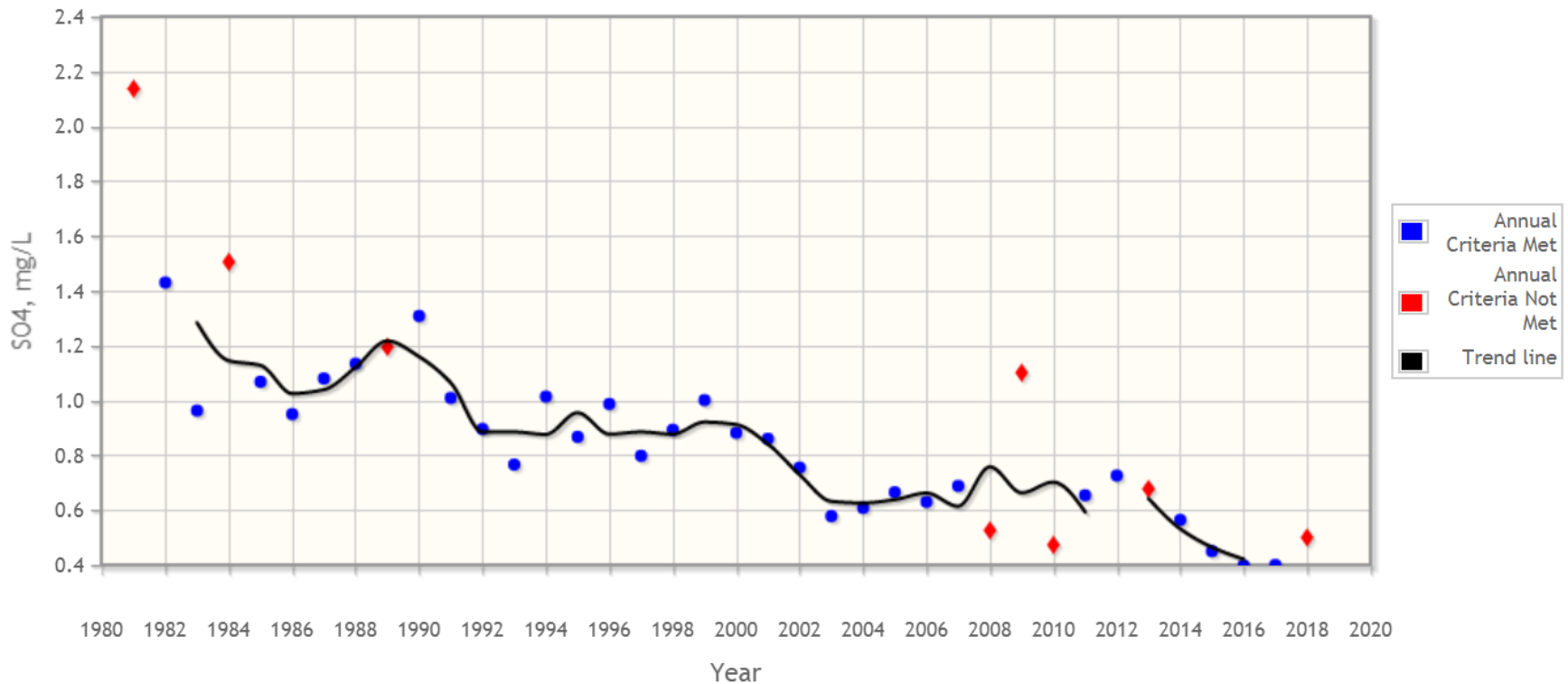
<http://nadp.slh.wisc.edu/ntn/>

Sulfate Trends at Mesa Verde National Park

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NTN Site CO99



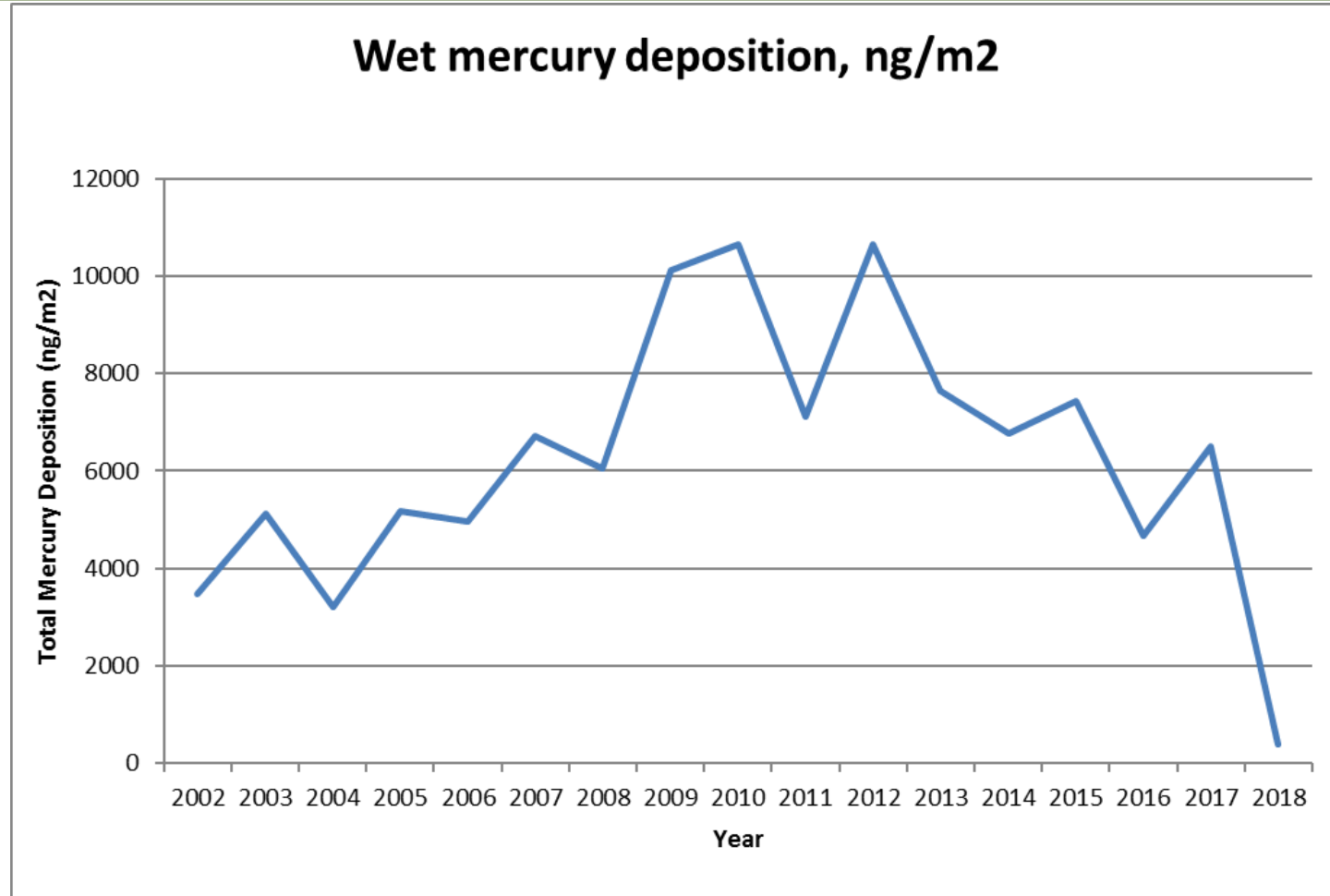
Decreasing trend over time

Data compiled from National Atmospheric Deposition Program:

<http://nadp.slh.wisc.edu/ntn/>

Mercury Trends at Mesa Verde National Park

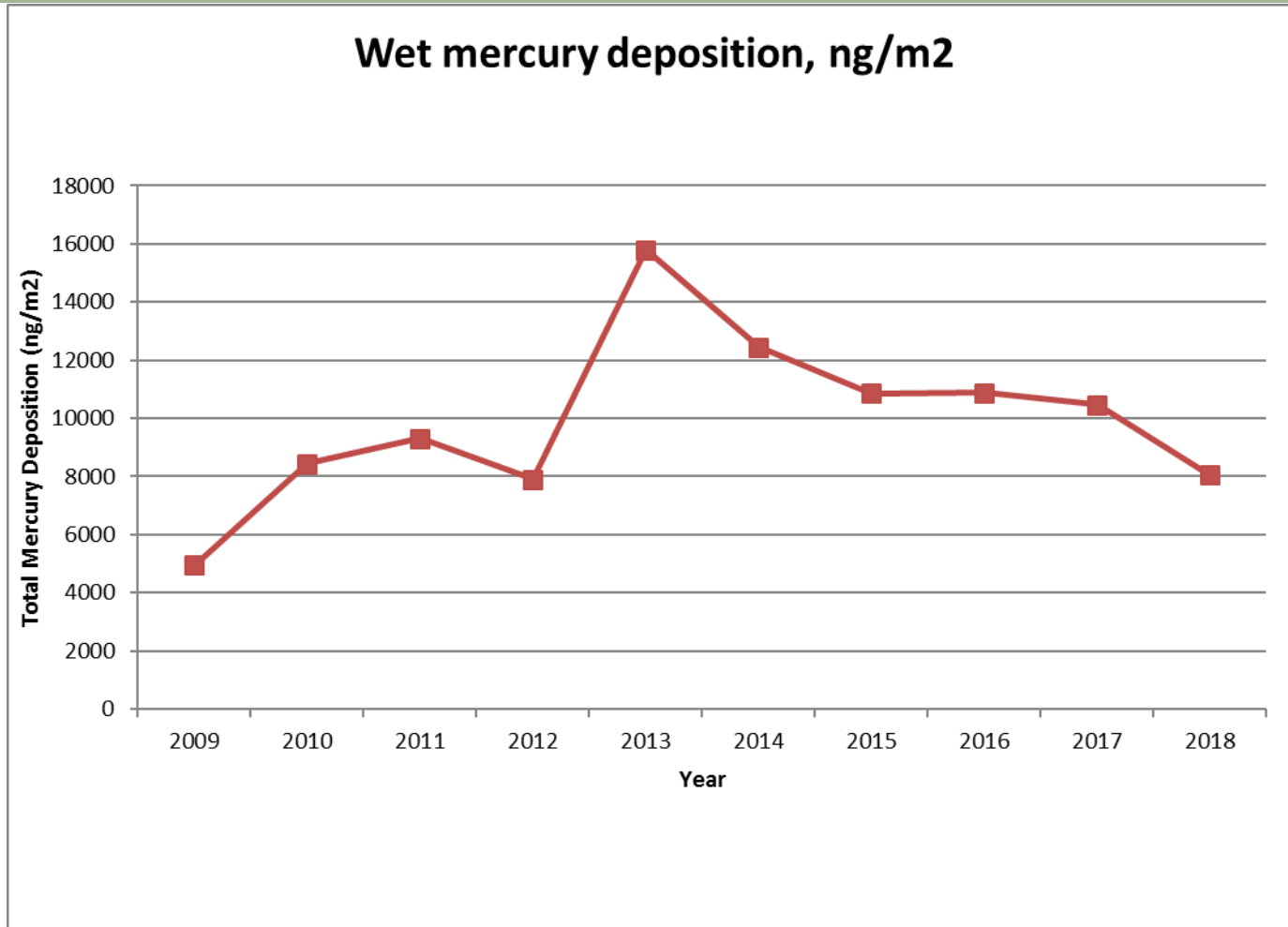
17



Short term decreasing trend, no long term trend. Data compiled from National Atmospheric Deposition Program: <http://nadp.slh.wisc.edu/ntn/>

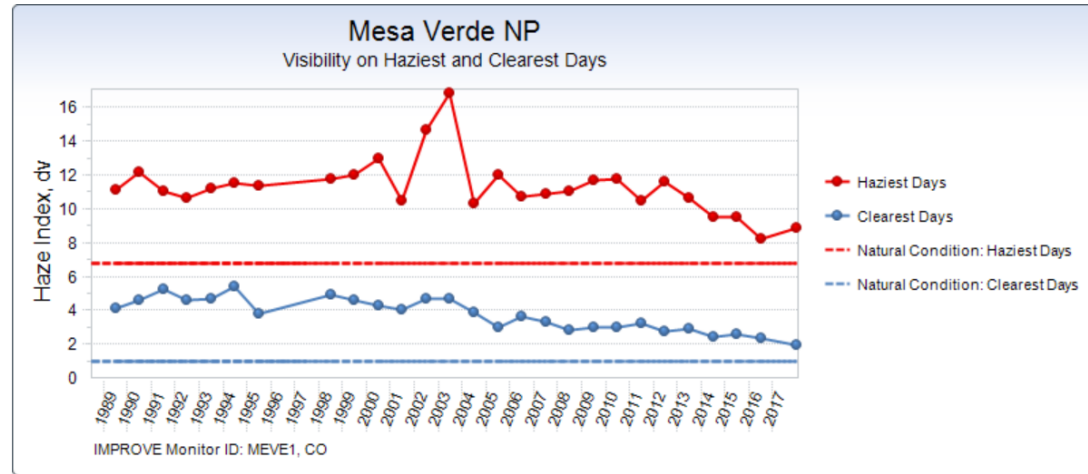
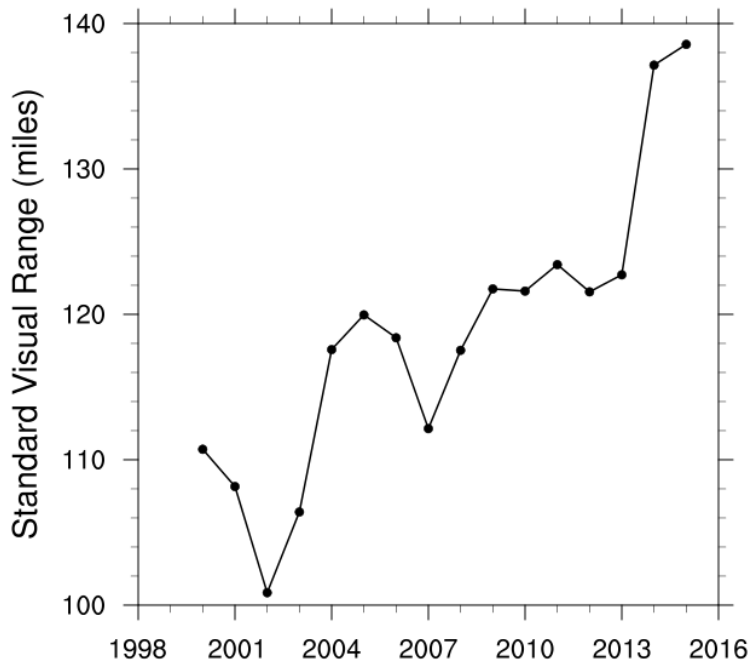
Mercury Trends at Molas Pass

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No short-term trend; long-term increasing trend. Data compiled from National Atmospheric Deposition Program: <http://nadp.slh.wisc.edu/ntn/>

Mesa Verde National Park Visibility Range Trend

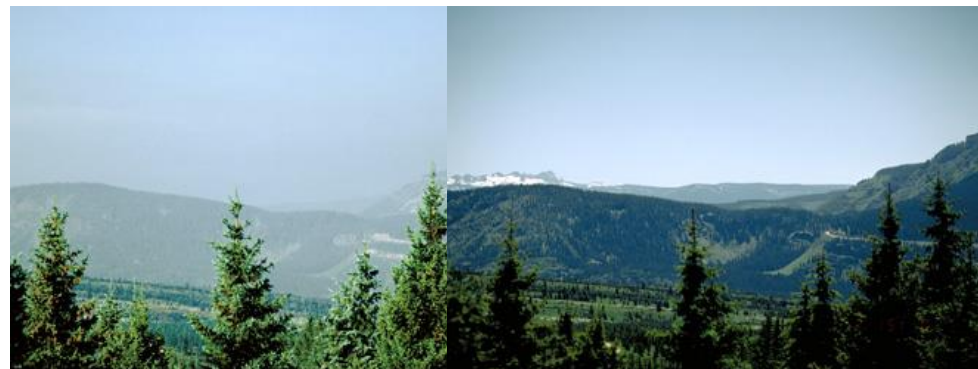
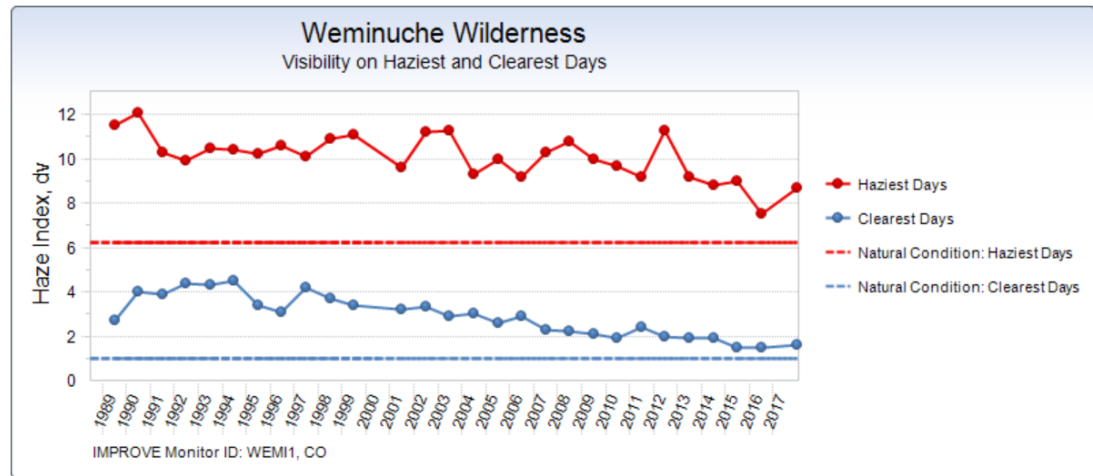
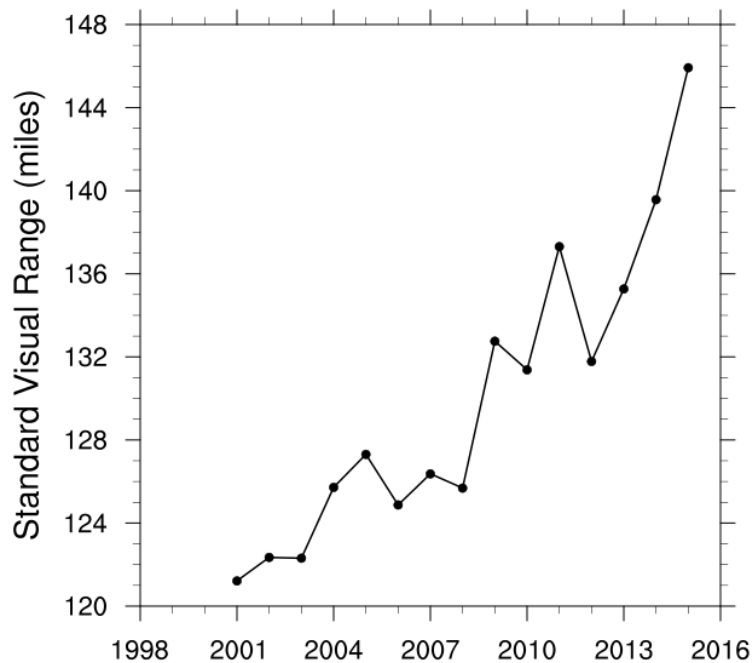


Mesa Verde NP Visibility Trend



Poor → Good Visibility

Weminuche Wilderness Area Visibility Range Trend



Poor → Good Visibility

Weminuche Wilderness Visibility Trend

Sources: IMPROVE and Federal Land Manager Environmental Database

Revised National Ambient Air Quality Standard (NAAQS) for Ozone

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- EPA released the final revised NAAQS on Oct. 1, 2015
- Primary standard = 70 ppb
 - No change in the form
 - Based on the 3-year average of the 4th maximum 8-hour values (truncated)
 - Non-overlapping provision (applies to 17 hours only)
- Secondary standard = 70 ppb
 - Same level and form as the primary standard
 - Approximately the same level of protection as a W126 standard of 17 ppm-hours
- EPA completed designations in July 2018

Questions?

