

NMED

New
Mexico
Environment
Department



COLORADO
Department of Public
Health & Environment

MONITORING TRENDS ANALYSIS 2018

10/24/2018

Mark Jones and Lisa Devore

New Mexico Environment Department & Colorado Department of Public Health
and Environment

Monitoring Trends Analysis

--- 2018 ---

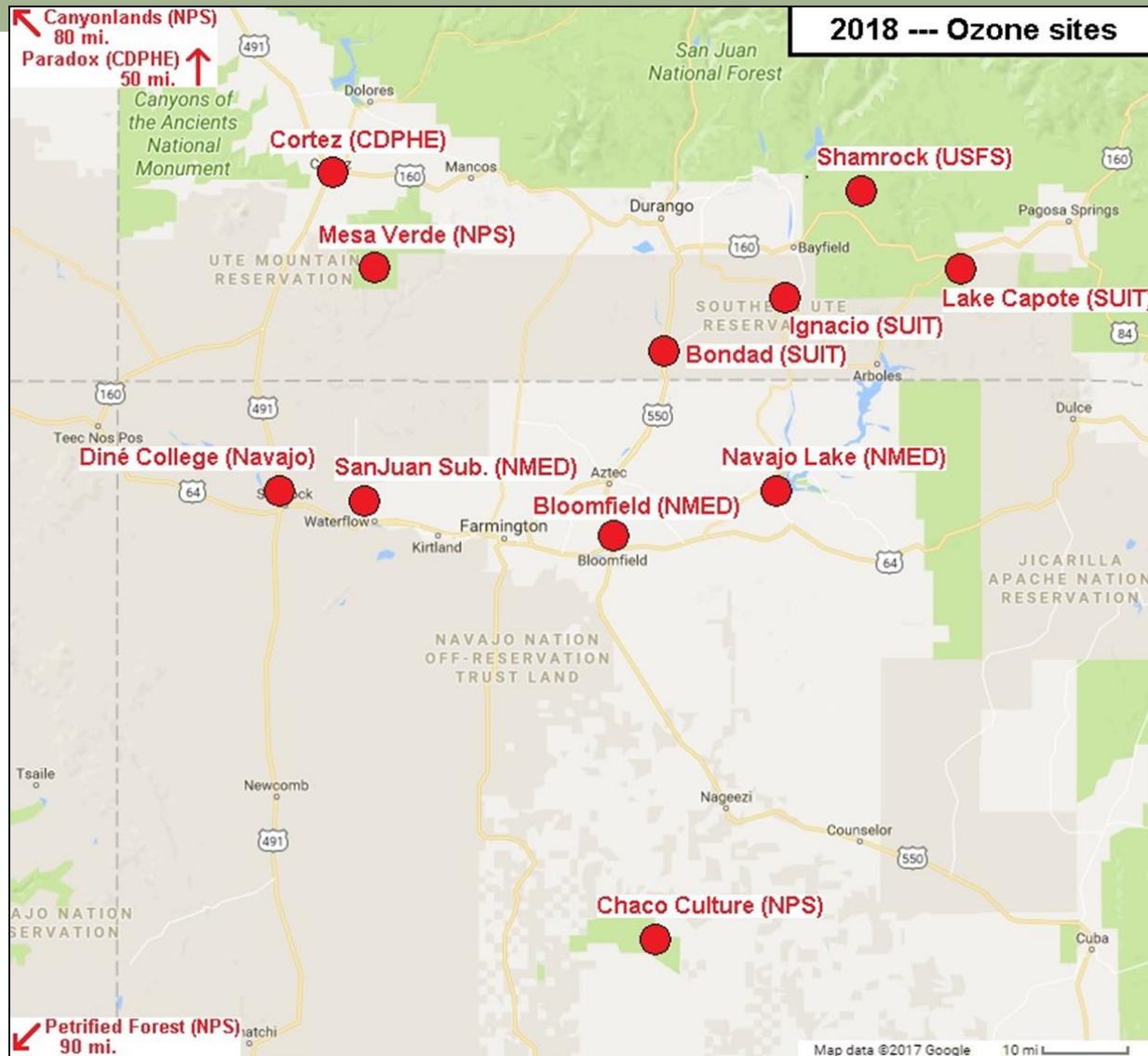


Four Corners Air Quality Group Meeting
Farmington, NM
October 24, 2018



COLORADO
Department of Public
Health & Environment

Ozone Monitoring Sites in the Four Corners Area



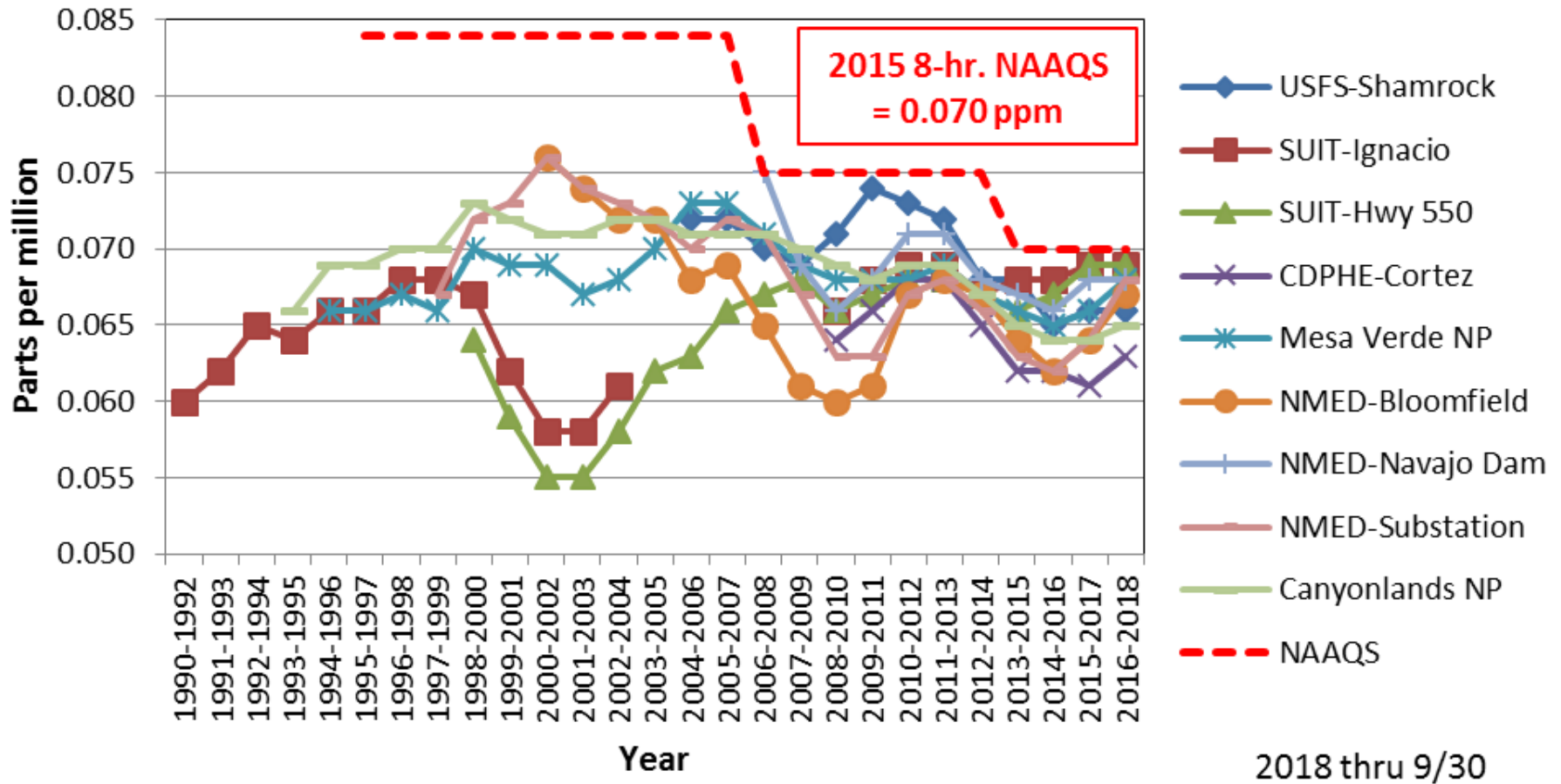
3-Year Average 4th Maximum 8-Hour Ozone Values

*** 2018 data through September 30 ***

DRAFT DATA for 2018

Site Name	AQS #	2016	2017	2018	2016-2018	2019 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)	3-yr Avg 4th Max Value (ppm)	
COLORADO						
USFS - Shamrock	08-067-1004	0.065	0.066	0.068	0.066	0.078
SUIT - Ignacio	08-067-7001	0.071	0.069	0.067	0.069	0.076
SUIT - Hwy 550	08-067-7003	0.072	0.069	0.067	0.069	0.076
SUIT - Lake Capote	08-067-7004		0.063	0.065	---	0.084
CDPHE - Cortez	08-083-0006	0.064	0.059	0.067	0.063	0.086
NPS - Mesa Verde	08-083-0101	0.066	0.066	0.072	0.068	0.074
CDPHE - Paradox	08-085-0005	0.062	0.058	0.066	0.062	0.088
NEW MEXICO						
NMED - Bloomfield	35-045-0009	0.065	0.068	0.070	0.067	0.074
NMED - Navajo Dam	35-045-0018	0.067	0.069	0.069	0.068	0.074
NPS - Chaco Culture	35-045-0020	---	0.064	0.068	---	0.080
NMED - Substation	35-045-1005	0.062	0.071	0.072	0.068	0.069
Navajo - Dine College	35-045-1233	0.064	0.061	0.069	0.064	0.082
ARIZONA						
NPS - Petrified Forest	04-017-0119	0.063	0.065	0.069	0.065	0.078
UTAH						
NPS - Canyonlands	49-037-0101	0.064	0.065	0.068	0.065	0.079

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



All sites below the current NAAQS

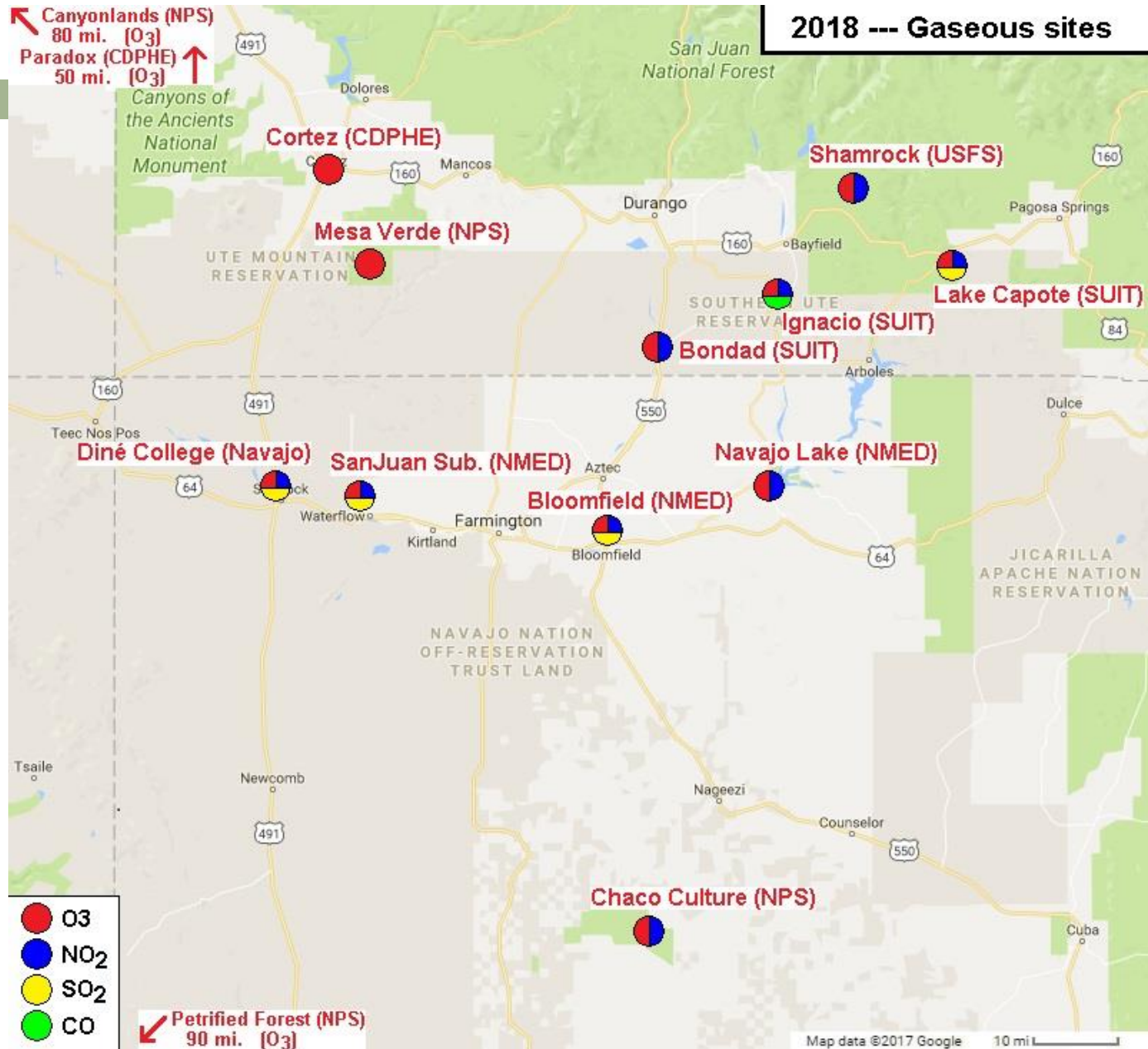
Other Air Monitoring in the Four-Corners Area (Non-Ozone)

6

- 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

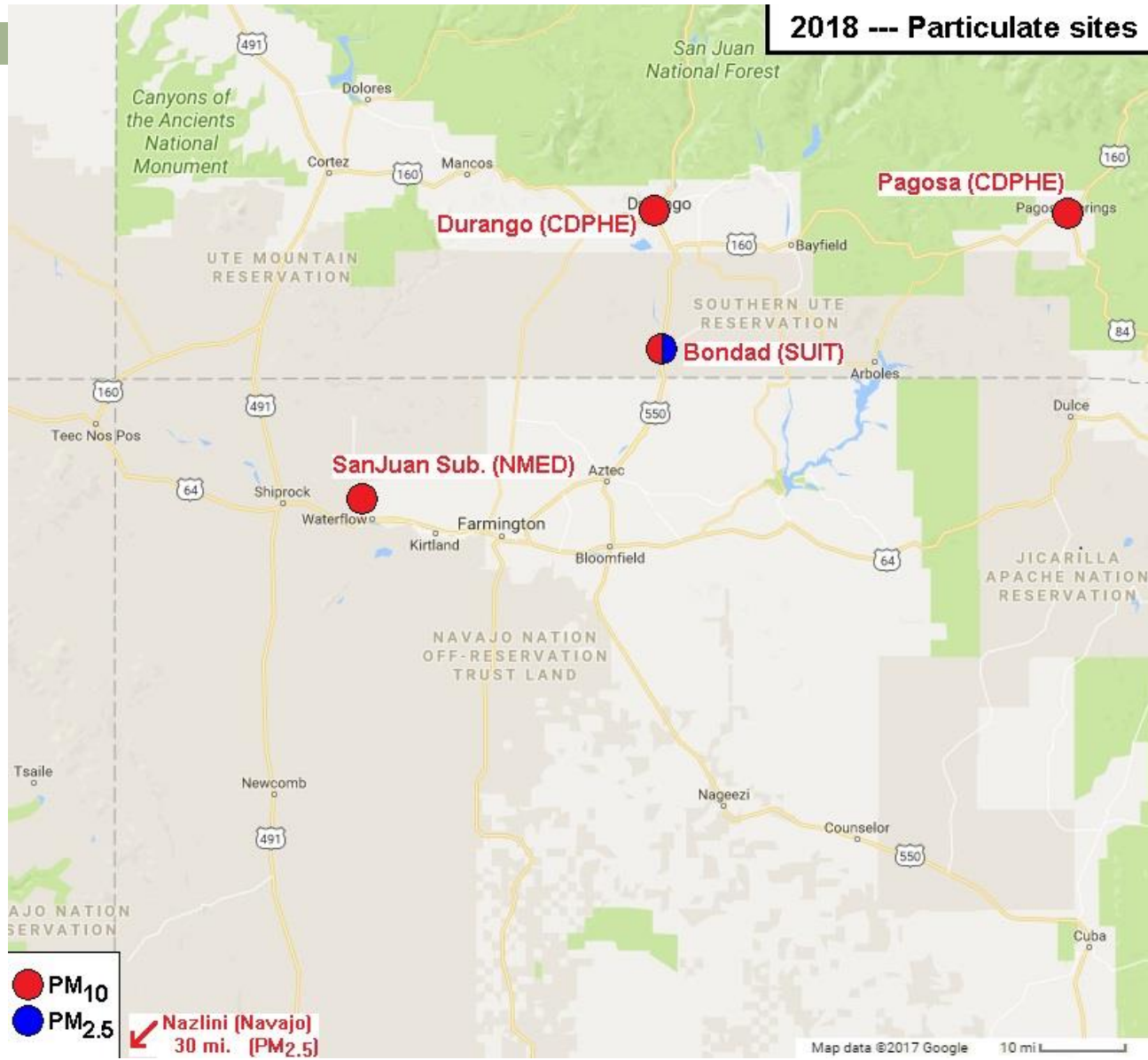
Gaseous Monitoring Sites in the Four Corners Area

7



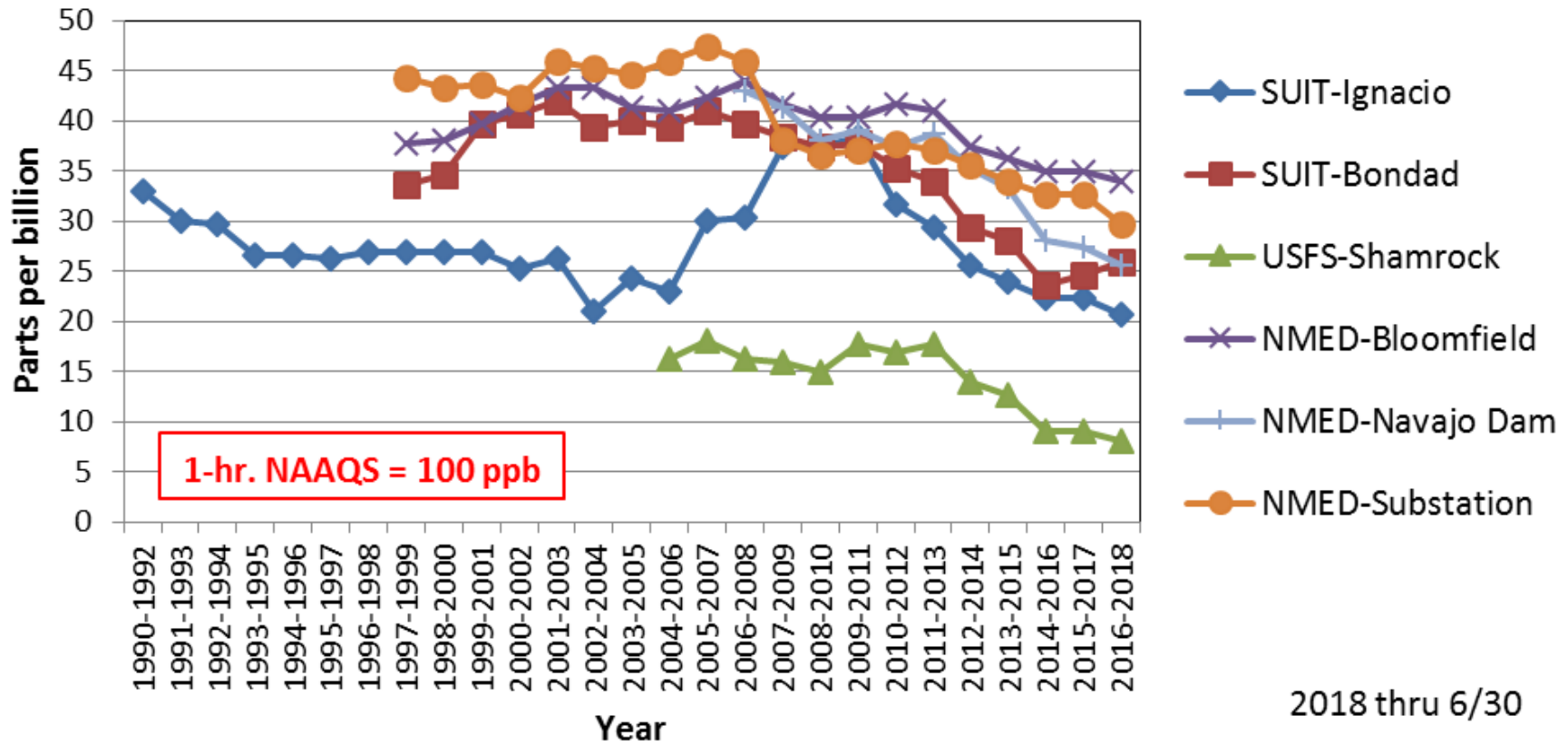
Particulate Monitoring Sites in the Four Corners Area

8

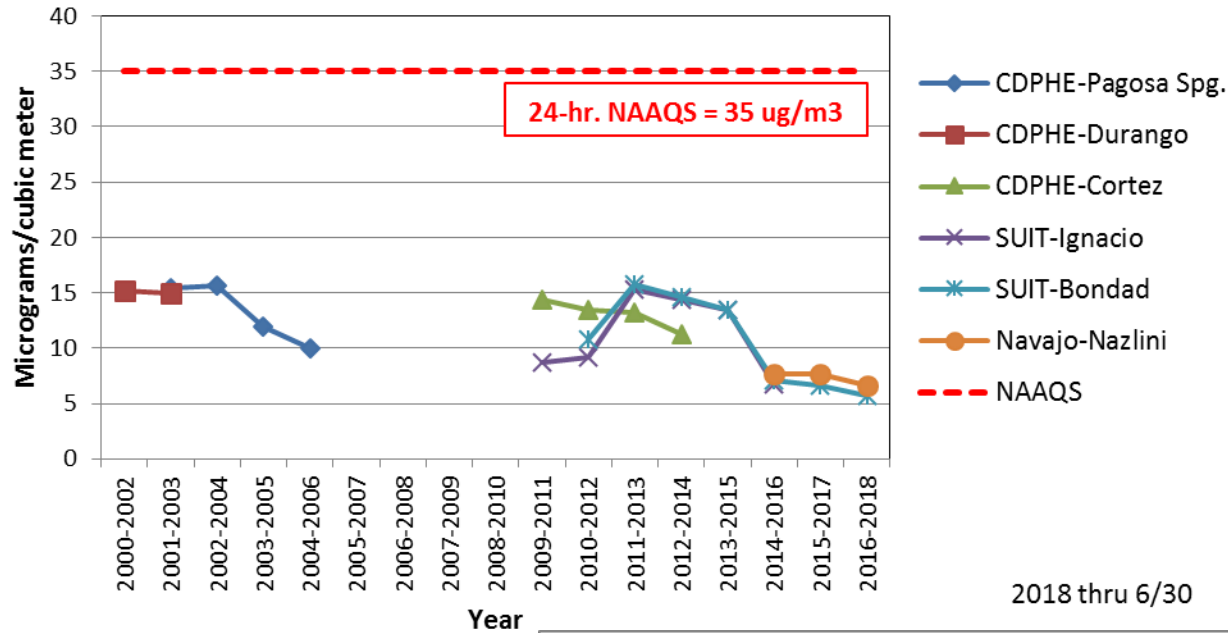


1-Hour Nitrogen Dioxide

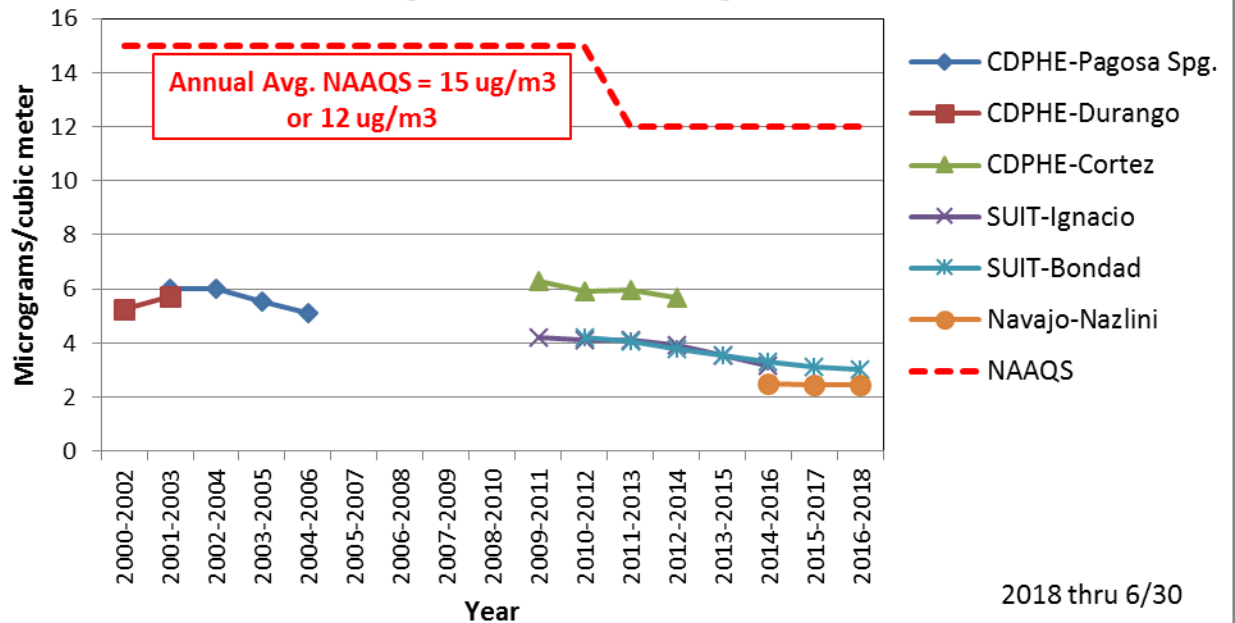
--- 3-Yr. Avg. of 98th Percentile ---



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



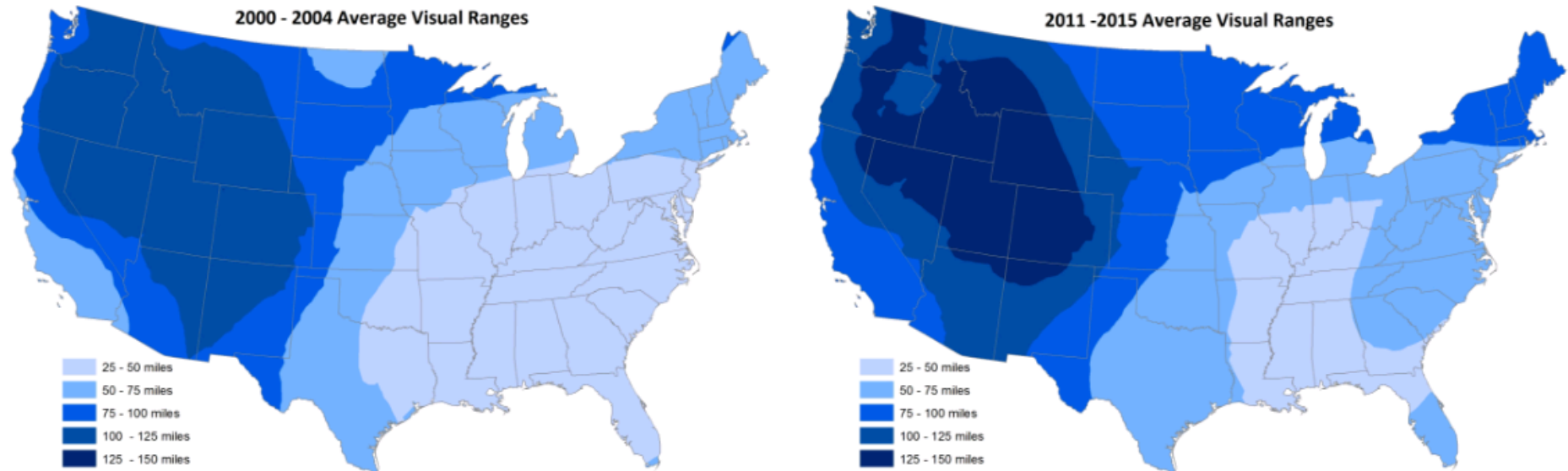
3-Yr. Avg. Annual Average PM2.5



Visibility

11

- 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



Courtesy: EPA

Mercury (Four Corners study 2017-2019)

12



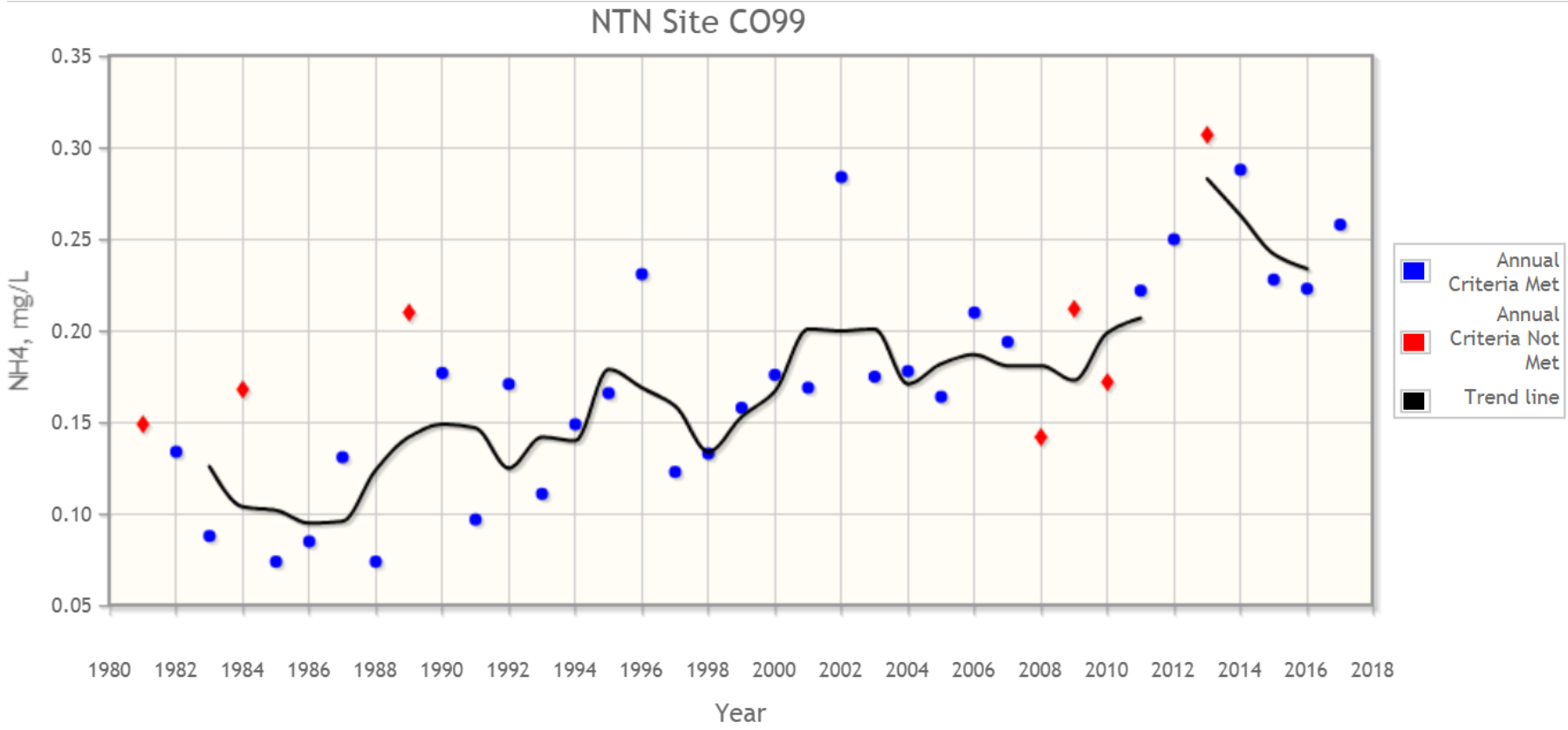
Two years of follow-up gaseous oxidized mercury (GOM) dry deposition measurements in the Four Corners Area 2017-2019; M.E. Sather et al.

Ammonia

13



Ammonium Trends at Mesa Verde National Park



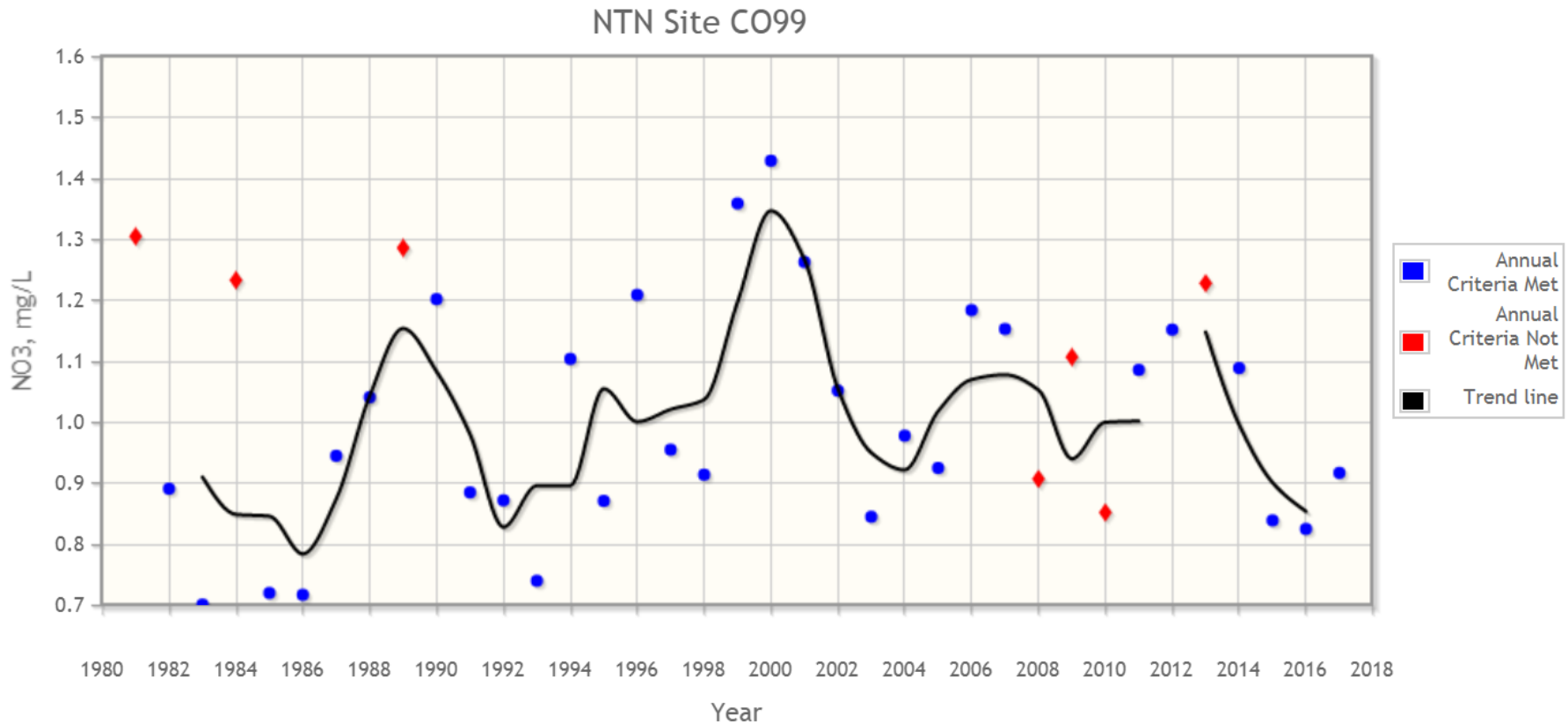
Increasing trend over time

Courtesy: National Atmospheric Deposition Program:

<https://nadp.slh.wisc.edu/NADP/>

Nitrate Trends at Mesa Verde National Park

15



No recent trend

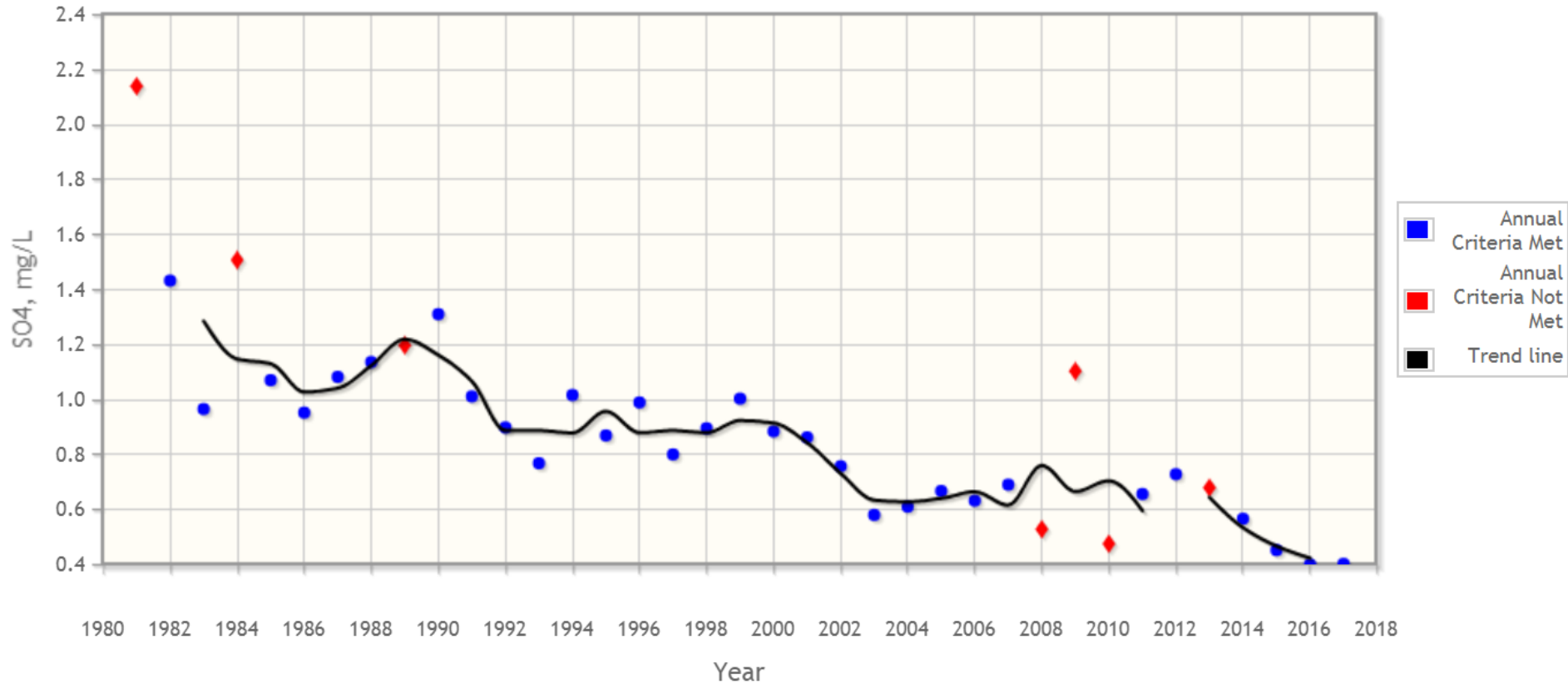
Courtesy: National Atmospheric Deposition Program:

<https://nadp.slh.wisc.edu/NADP/>

Sulfate Trends at Mesa Verde National Park

16

NTN Site CO99



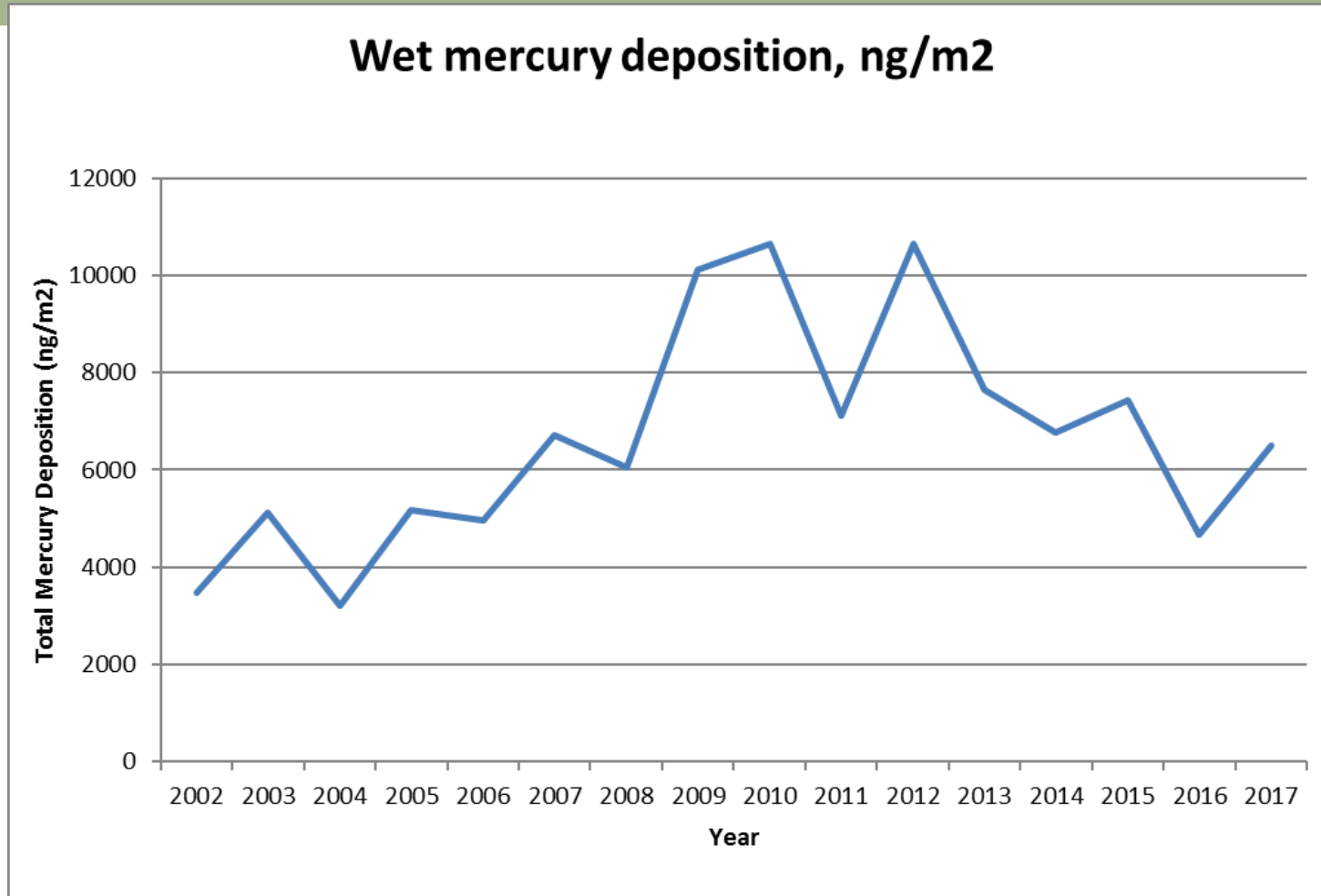
Decreasing trend over time

Courtesy: National Atmospheric Deposition Program:

<https://nadp.slh.wisc.edu/NADP/>

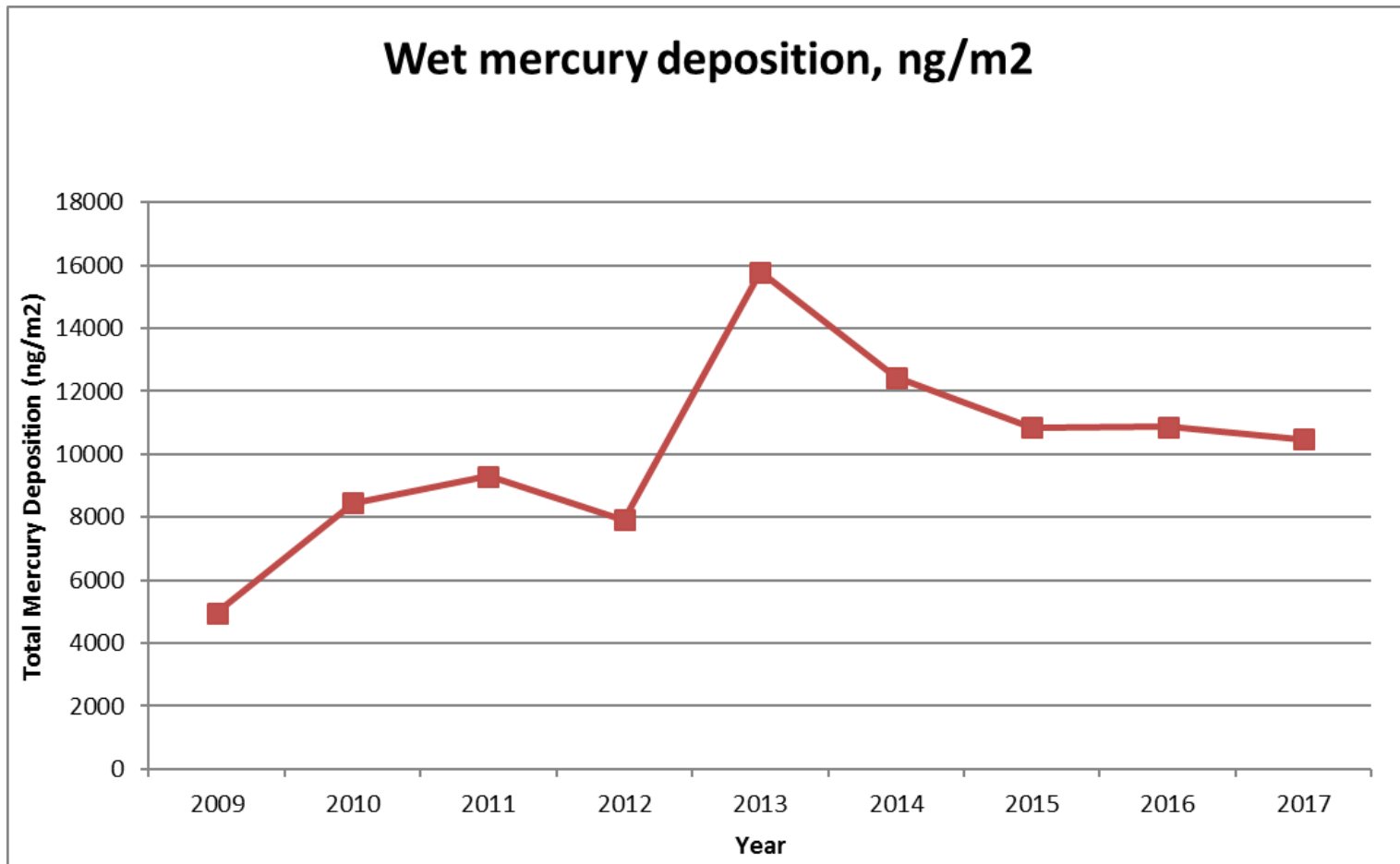
Mercury Trends at Mesa Verde National Park

17



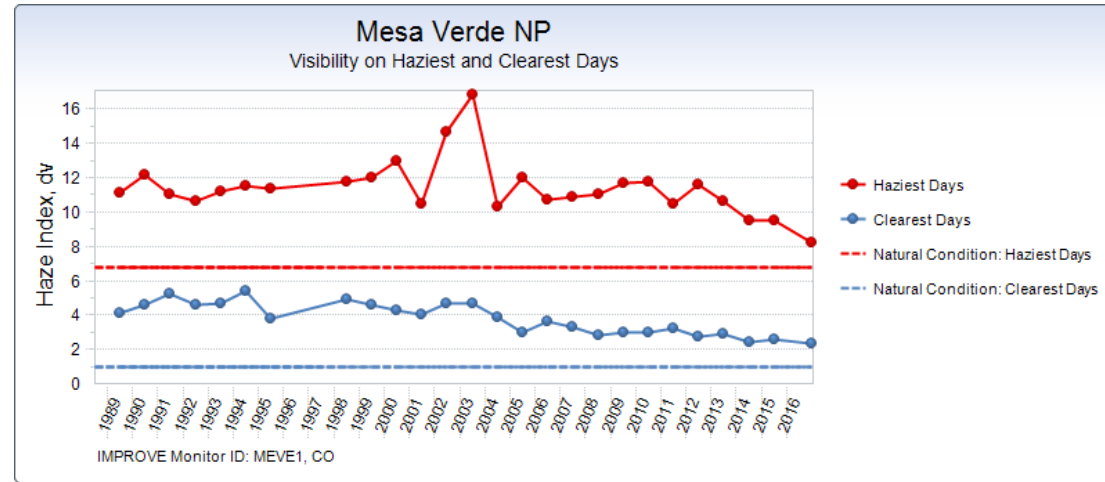
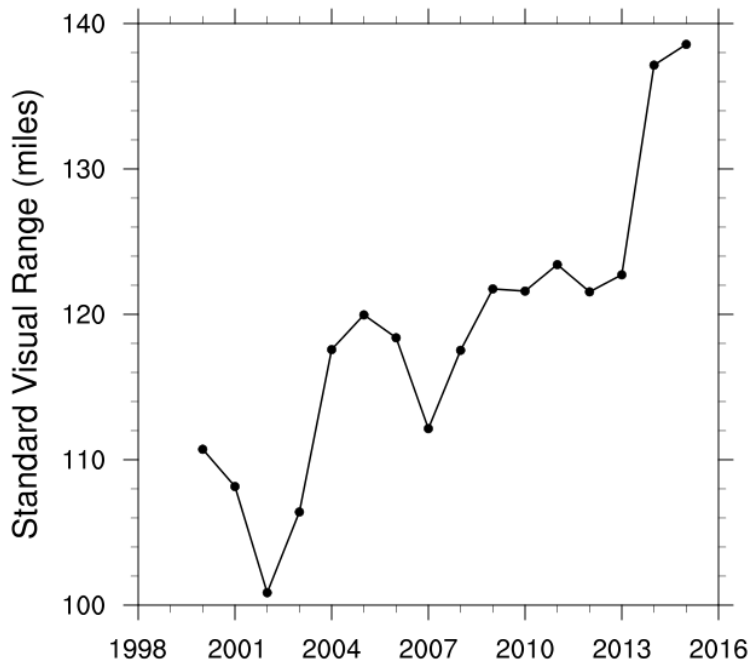
No short-term trend; long-term slight increasing trend. Data obtained from National Atmospheric Deposition Program: <https://nadp.slh.wisc.edu/NADP/>

Mercury Trends at Molas Pass



No short-term trend; long-term increasing trend. Data obtained from National Atmospheric Deposition Program: <https://nadp.slh.wisc.edu/NADP/>

Mesa Verde National Park Visibility Range Trend

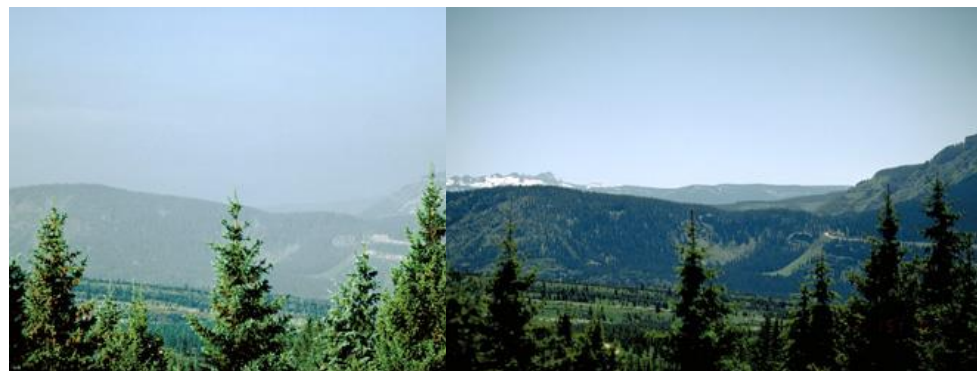
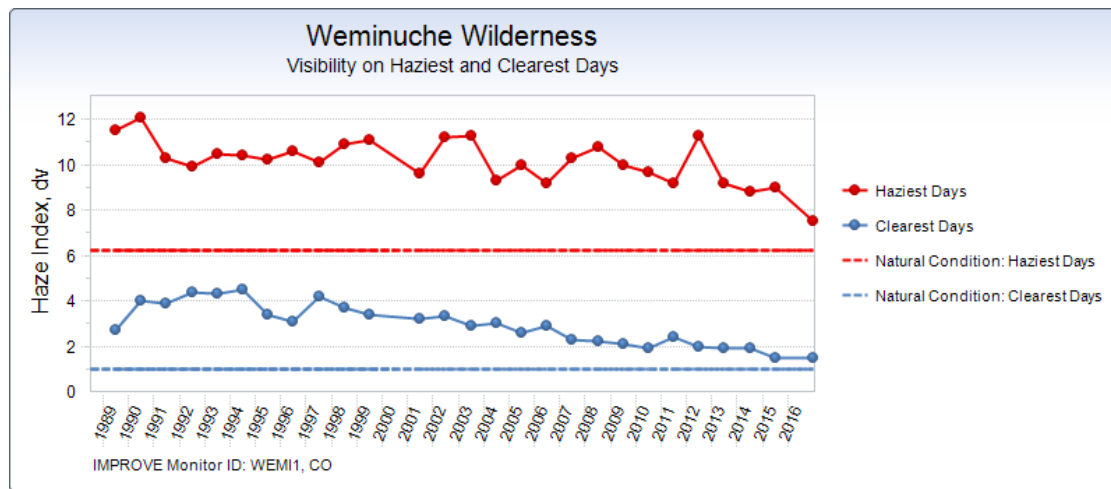
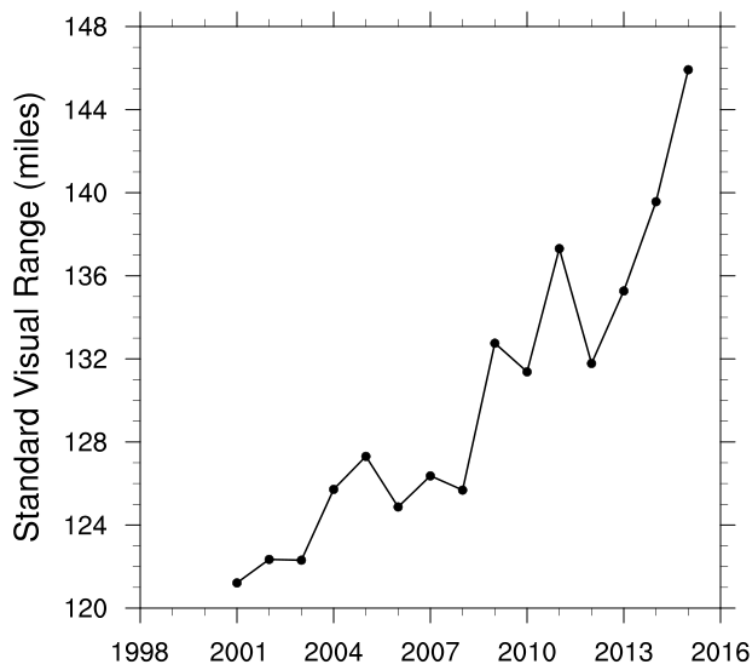


Mesa Verde NP Visibility Trend



Poor → Good Visibility

Weminuche Wilderness Area Visibility Range Trend



Poor → Good Visibility

Weminuche Wilderness Visibility Trend

Revised National Ambient Air Quality Standard (NAAQS) for Ozone

21

- 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?

