

2006 National Air Monitoring Conference

Las Vegas, NV – November 6 – 9, 2006



**Panel Discussion –
Current and Future
Challenges for Western
States**

Western US Monitoring Issues

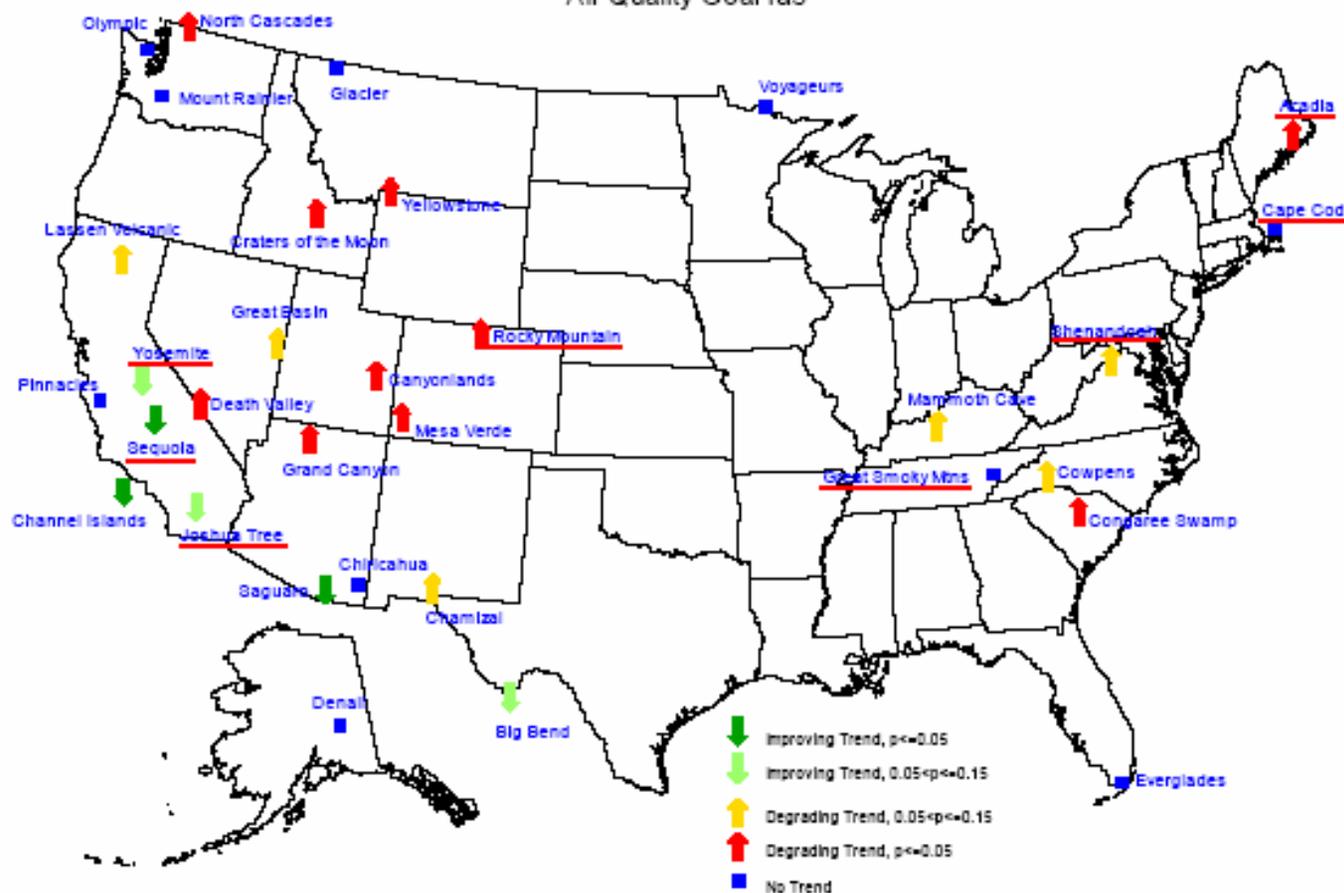
- Enormous Landscapes/Huge Distances to represent through monitoring
- Areas of both high population density and very rural, sparse population
- Urban areas with rapid growth, rampant construction, traffic congestion
- Air pollution levels high for PM (both), ozone, air toxics
- Many of the nation's Class I Areas
- Historically, states and locals have operated independently on monitoring. Little regional planning organization activity
- Topography and Meteorology (basin and range phenomenon concentrates pollution)
- Large expanses of agricultural production
- Reporting daily PM_{2.5} to public in more areas
- Shipping channel activity impacts to west coast (O₃, PM, NO_x and SO_x)

Ozone

- Western US background Influenced by offshore sources
- Urban impacts outside urban areas; transport not addressed
- Rapid growth of urban areas, Las Vegas, Phoenix, Sacramento
- Challenges: areas unable to get more emission reductions
- Lower 8-hour standard, many more areas not attaining

Ozone Trends at NPS Sites

Trends in 3-Year Average 4th Highest 8-Hour Ozone Concentrations, 1994-2003
 FY2004 Annual Performance Report for NPS Government Performance and Results Act (GPRA)
 Air Quality Goal Ia3

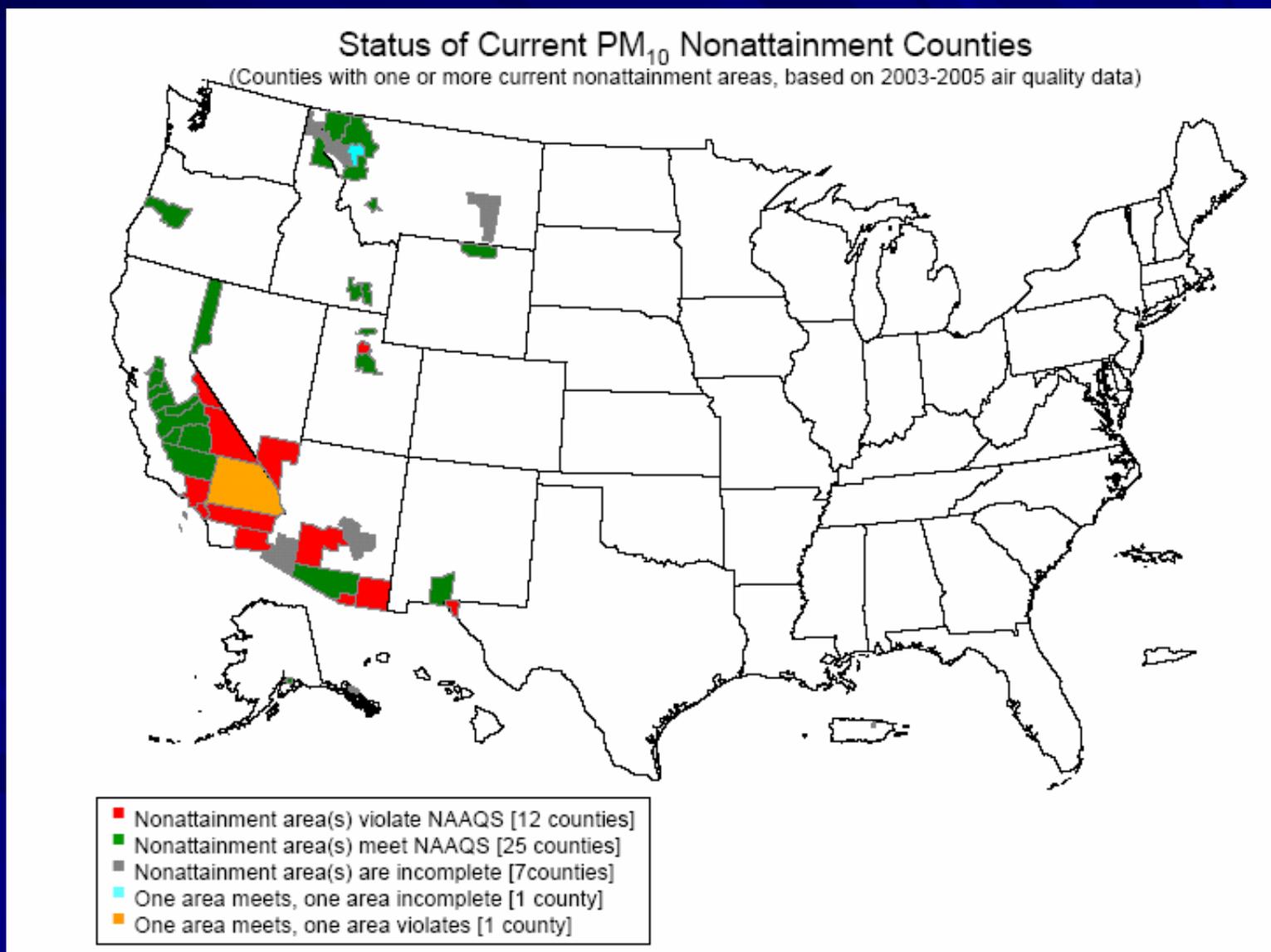


Downward pointing arrows denote trends toward decreasing ozone concentrations and improving air quality. Similarly, the up arrows correspond to trends toward higher ozone concentrations and hence worsening air quality. Park names underlined in red denote parks where monitored ozone levels exceed the level of the NAAQS or are part of an ozone non-attainment area.

Particulate Matter

- Fine and coarse PM pollution widespread
- Fugitive dust difficult to define or control
- Neither projected to improve thru 2015
- Visibility
- Wildfires contribute in uncontrollable ways
- Meteorological monitoring networks not adequate for documentation of exceptional events (fires hundreds of miles away, etc)
- Improvements have been made for PM₁₀

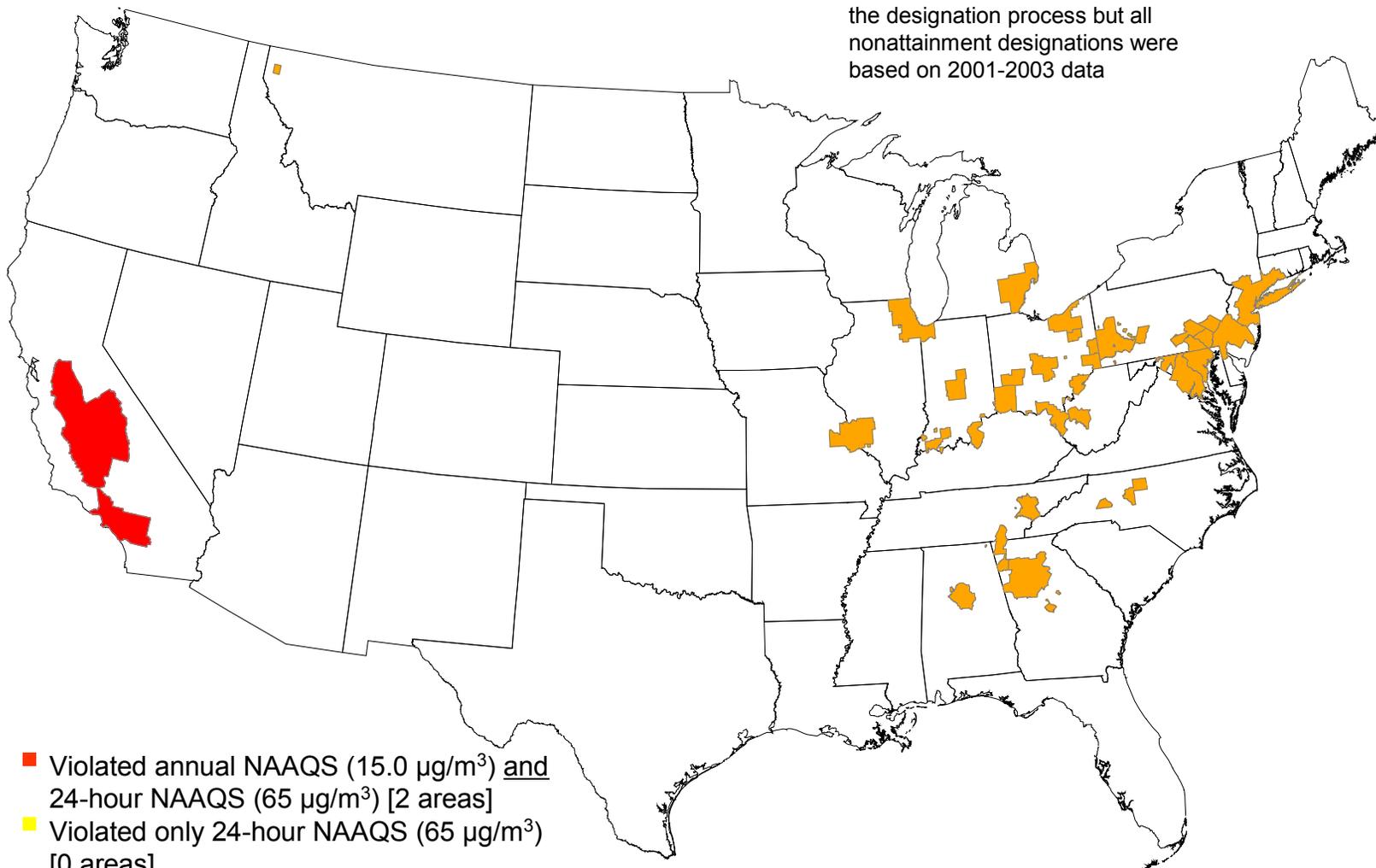
PM₁₀ Nonattainment Areas



Currently Designated PM_{2.5} Nonattainment Areas - 1997 Standards

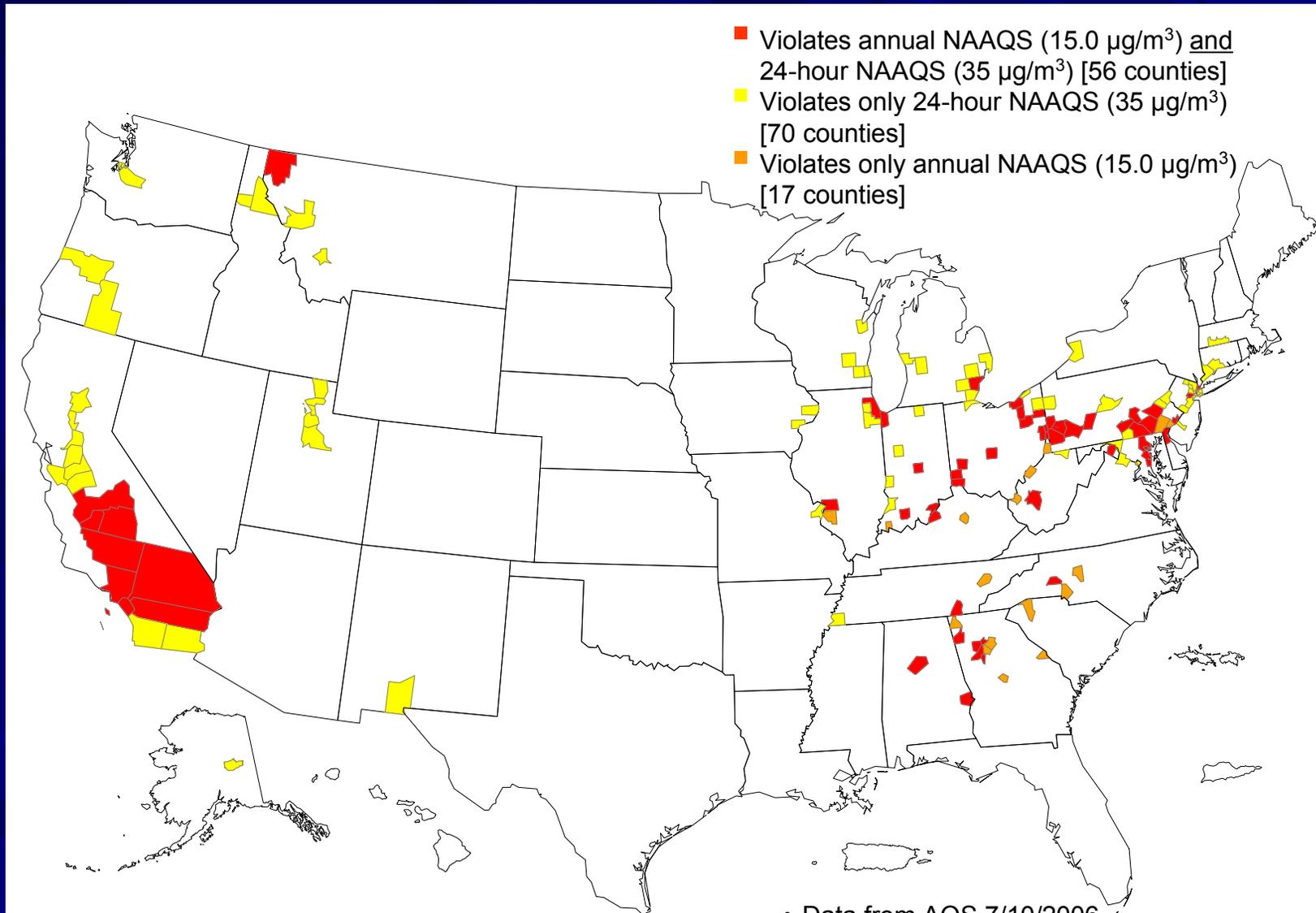
Violated annual and/or 24-hour NAAQS with designated data (2001-2003*)

* 2002-2004 data were considered in the designation process but all nonattainment designations were based on 2001-2003 data



- Violated annual NAAQS (15.0 $\mu\text{g}/\text{m}^3$) and 24-hour NAAQS (65 $\mu\text{g}/\text{m}^3$) [2 areas]
- Violated only 24-hour NAAQS (65 $\mu\text{g}/\text{m}^3$) [0 areas]
- Violated only annual NAAQS (15.0 $\mu\text{g}/\text{m}^3$) [37 areas]

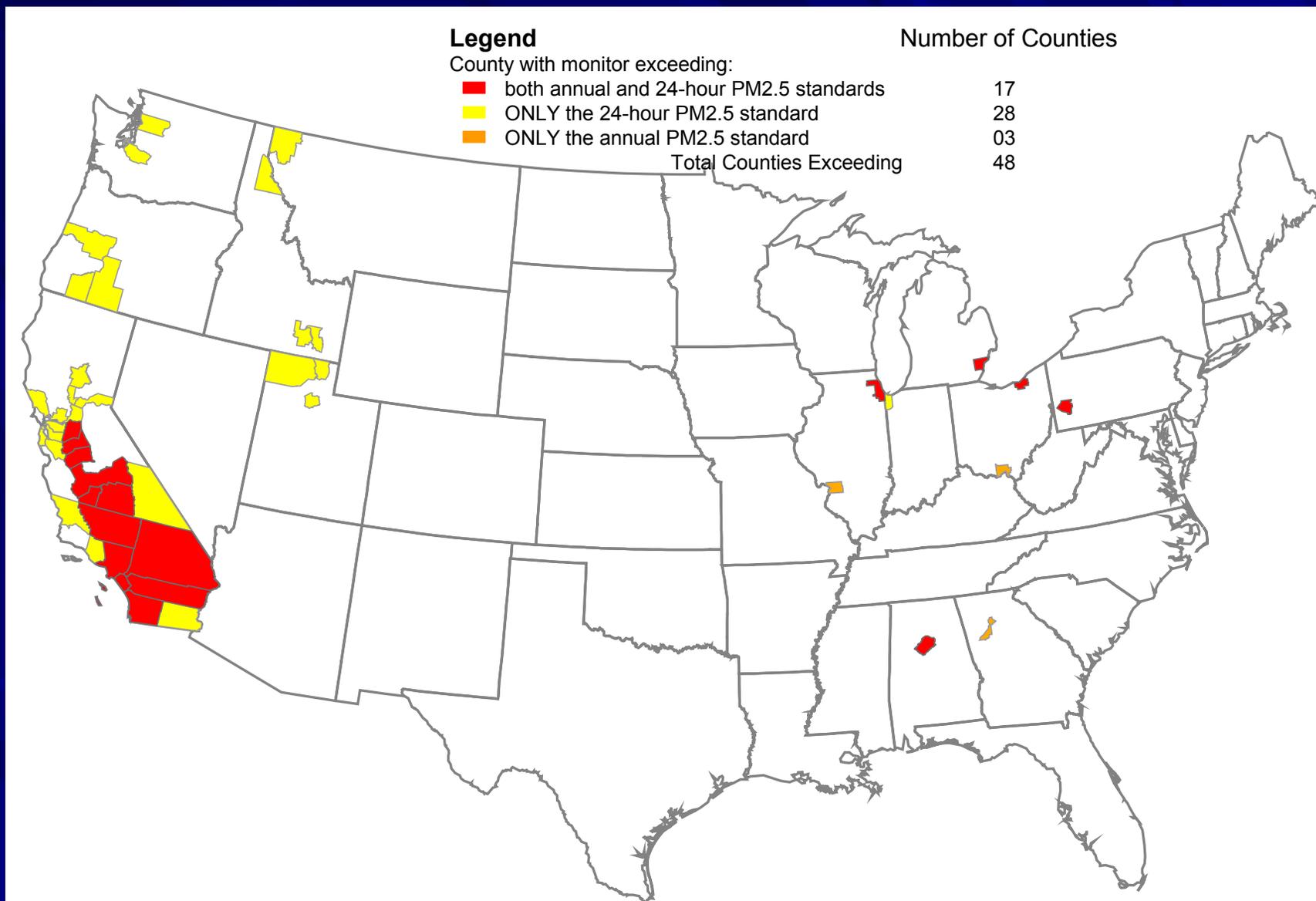
Counties Exceeding New NAAQS Levels, 2003-2005



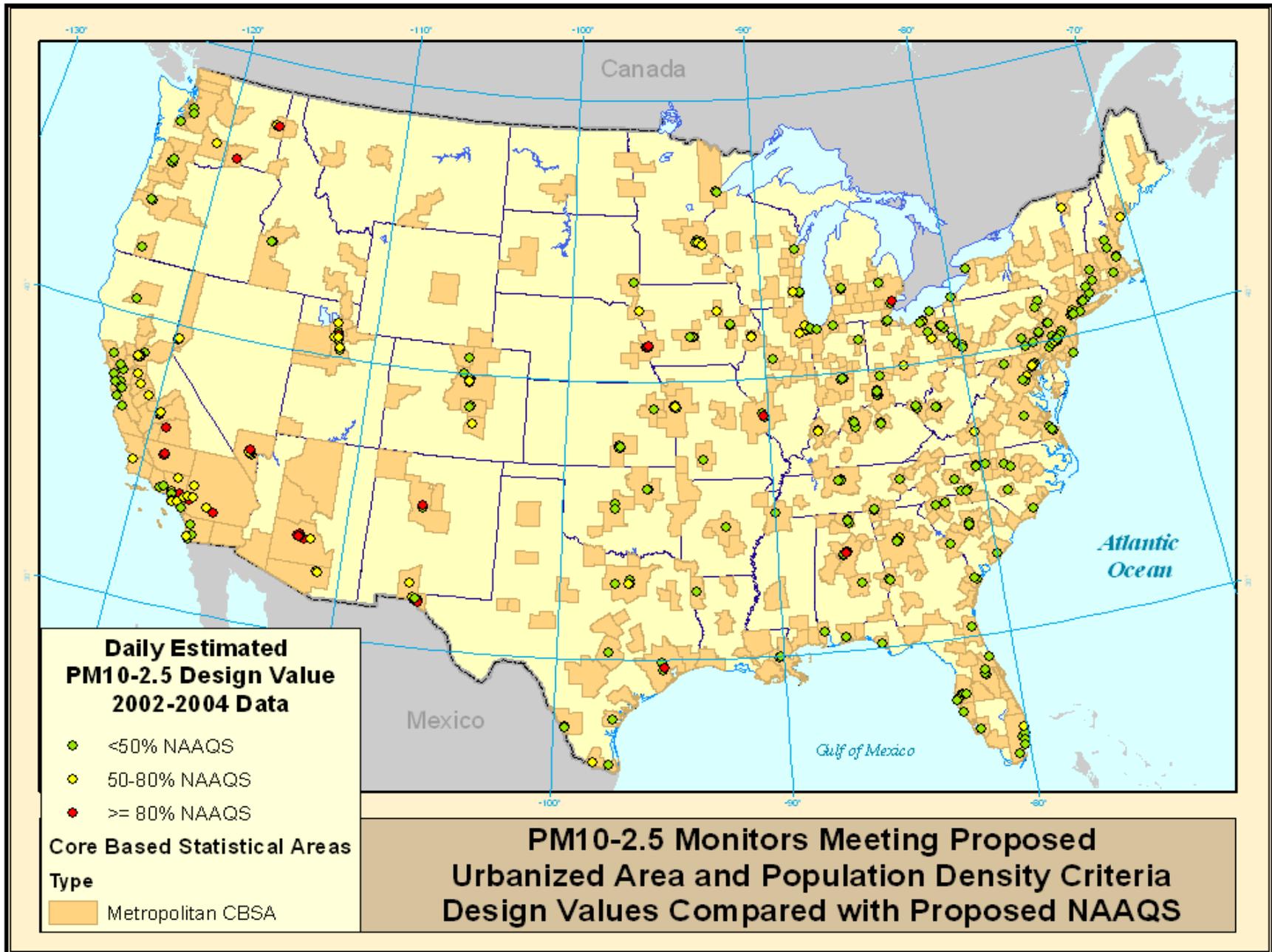
- Data from AQS 7/10/2006.
- Completeness criteria: 2006 CFR or 11+ samples per quarter

Counties Projected to Exceed the PM_{2.5} NAAQS in 2020 Based on EPA Modeling*

Annual 15 ug/m³ and 24-Hour 35 ug/m³



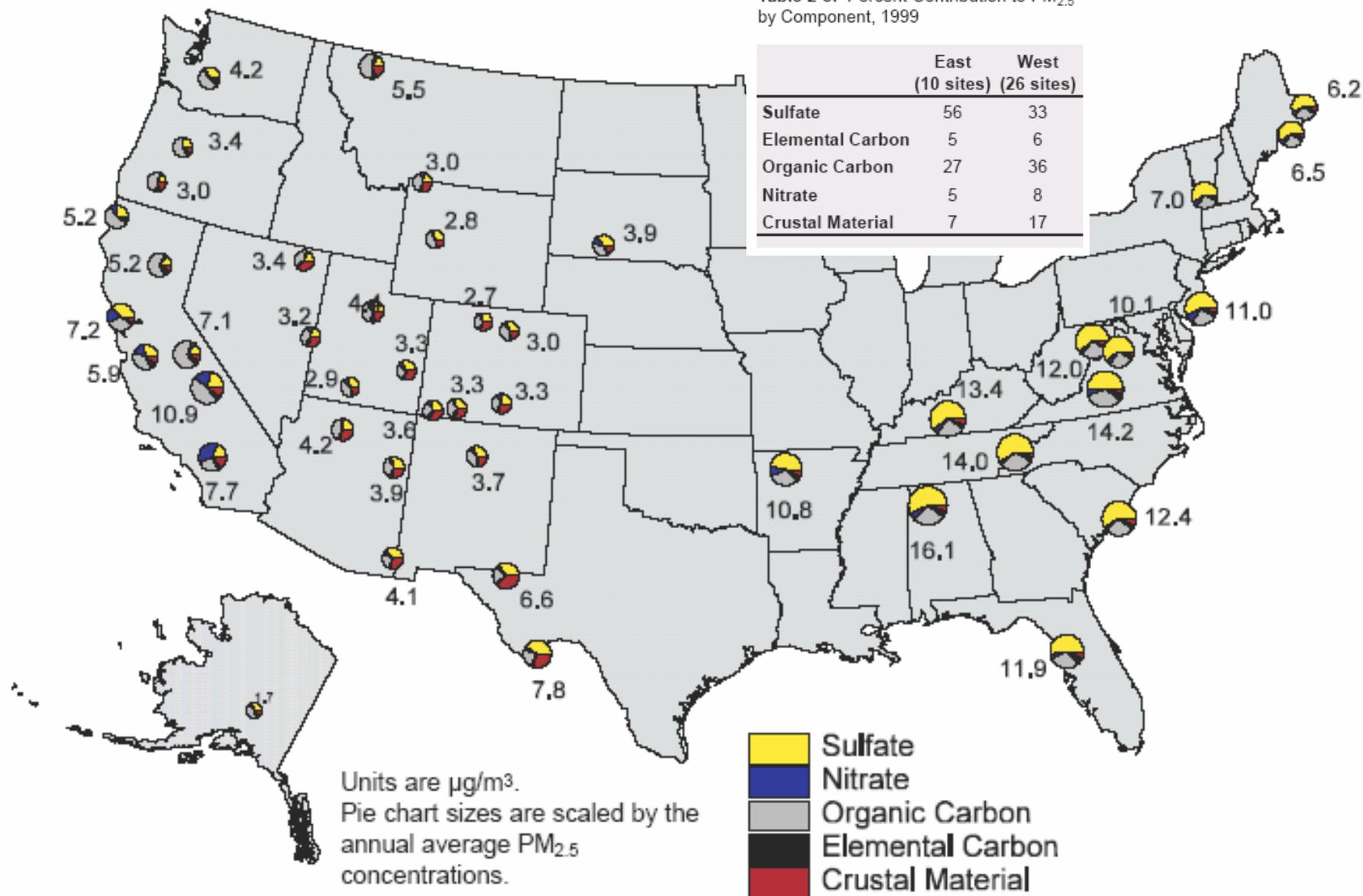
Projections as of September 2006. EPA models assume implementation of CAIR/CAMR/CAVR, Title IV of the Clean Air Act, the NO_x SIP Call, and some existing state programs. This approach does not forecast actions states will take to meet current PM standards.



PM_{2.5} Composition (Annual)

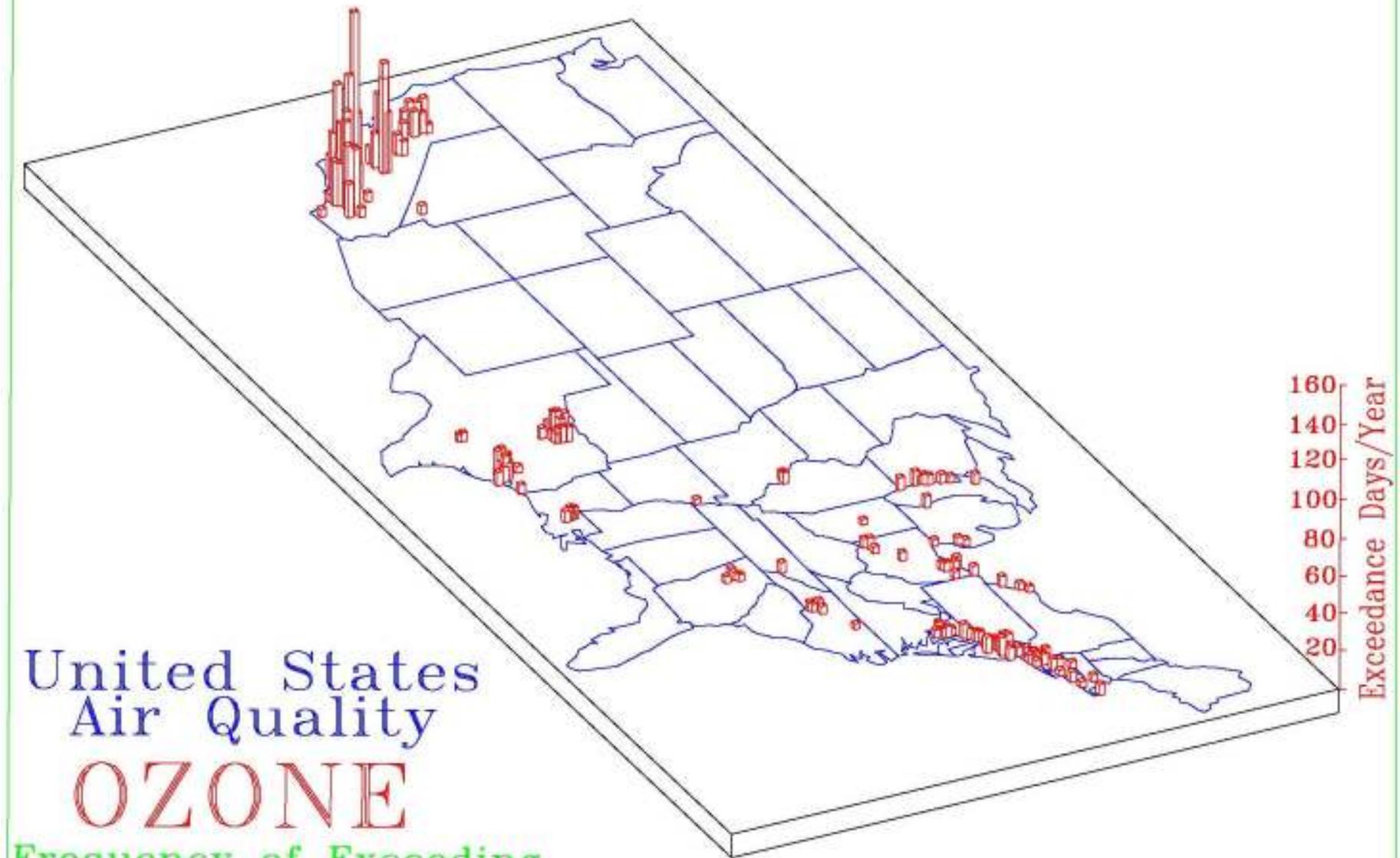
Table 2-5. Percent Contribution to PM_{2.5} by Component, 1999

	East (10 sites)	West (26 sites)
Sulfate	56	33
Elemental Carbon	5	6
Organic Carbon	27	36
Nitrate	5	8
Crustal Material	7	17



Additional Issues

- Exceptional events
 - Fires
 - Volcanoes
 - Dust storms
- Air monitoring site retention while networks still growing
- Determining PM composition and sources
- Air toxics
- Funding

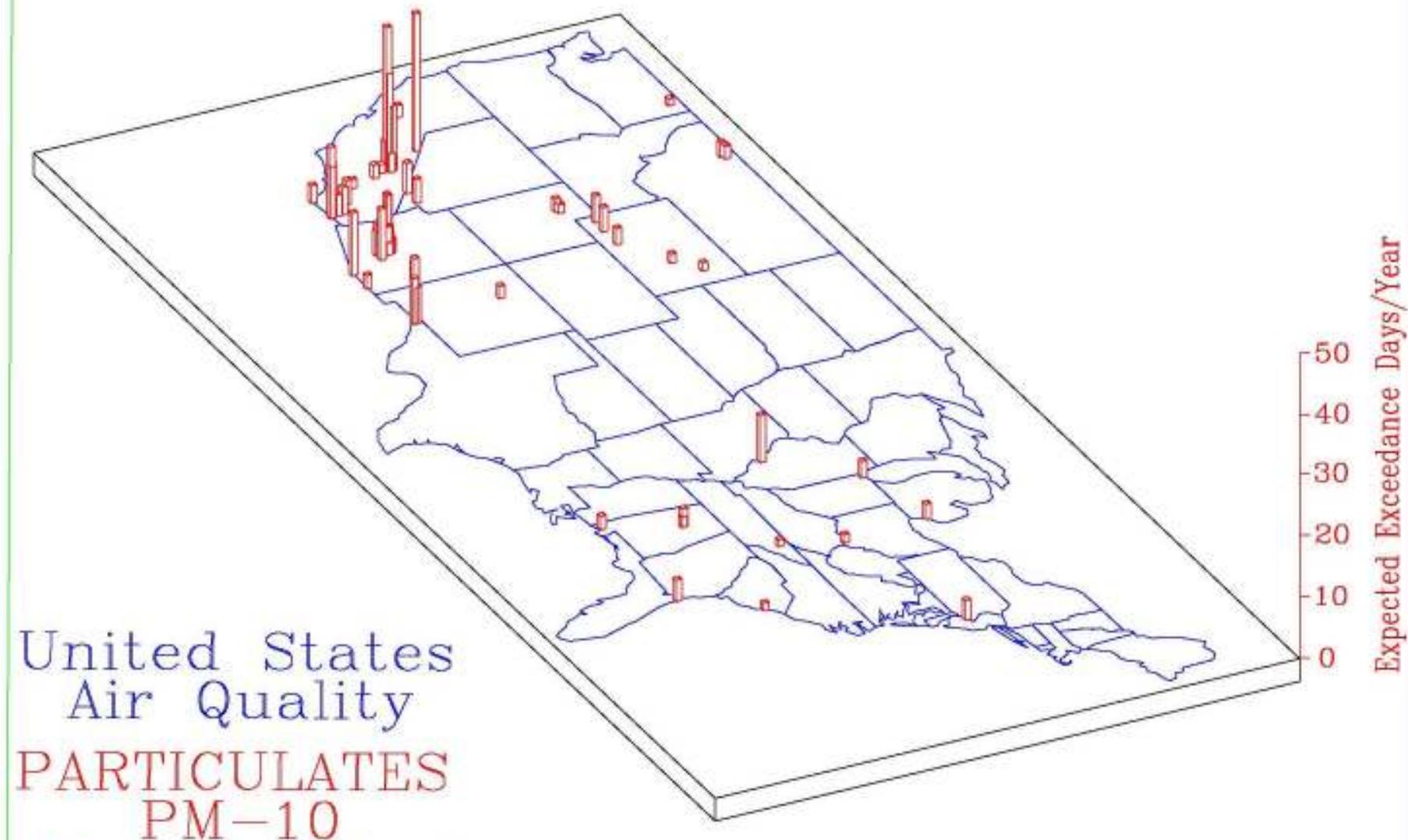


United States
Air Quality

OZONE

Frequency of Exceeding
the 8-hour National Standard
2003-2005

Standard = 0.08ppm - 8 hour average concentration
Only sites not meeting the standard (40CFR 50.10) are shown.
Based on 2003 thru 2005 data from US EPA's AQS database.

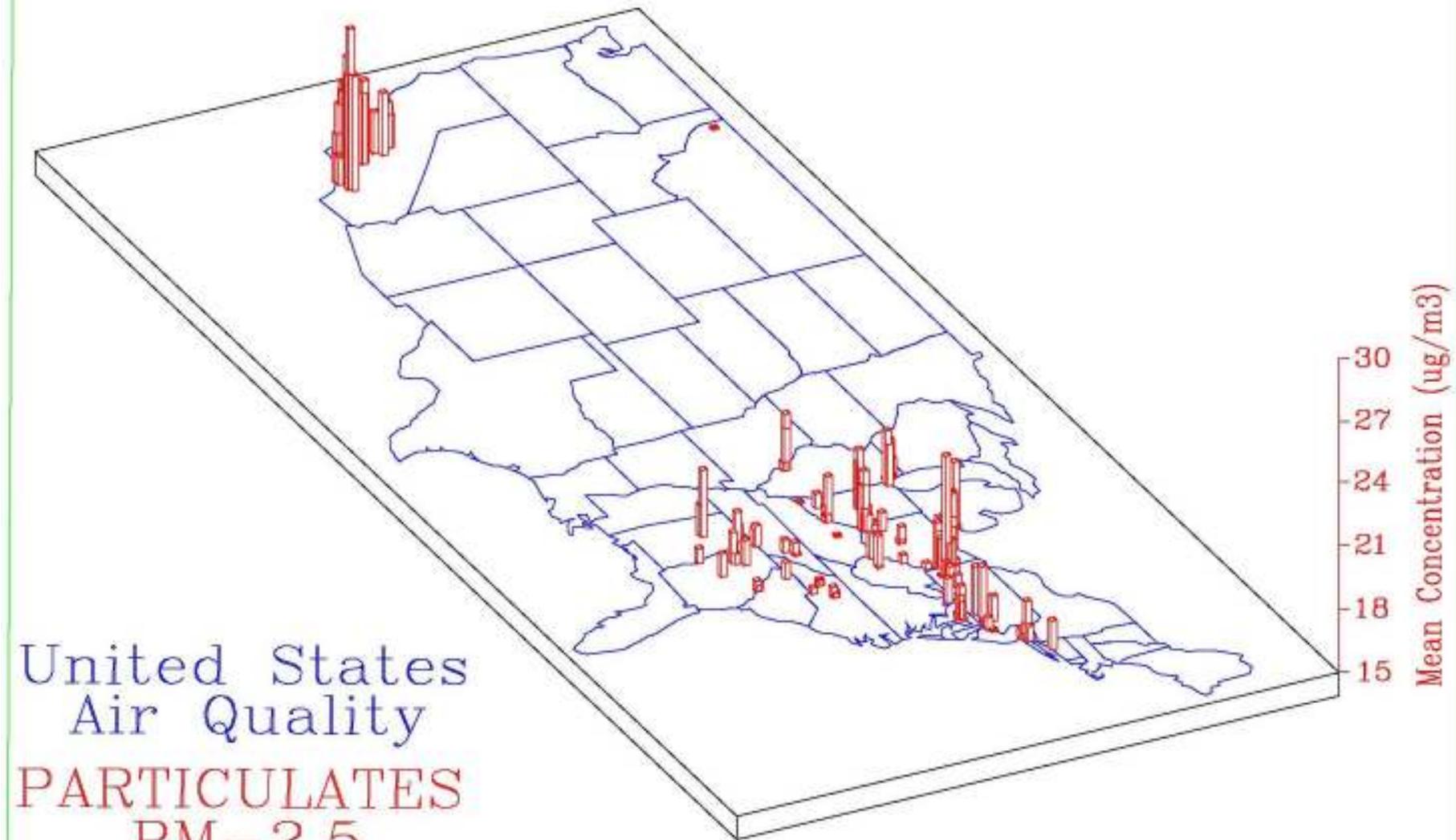


United States
Air Quality

PARTICULATES
PM-10

Frequency of Exceeding
the 24-hour National Standard
2003-2005

Standard = 150 micrograms per cubic meter - 24-hour average concentration
Based on 2003 thru 2005 data from US EPA's AQS database.



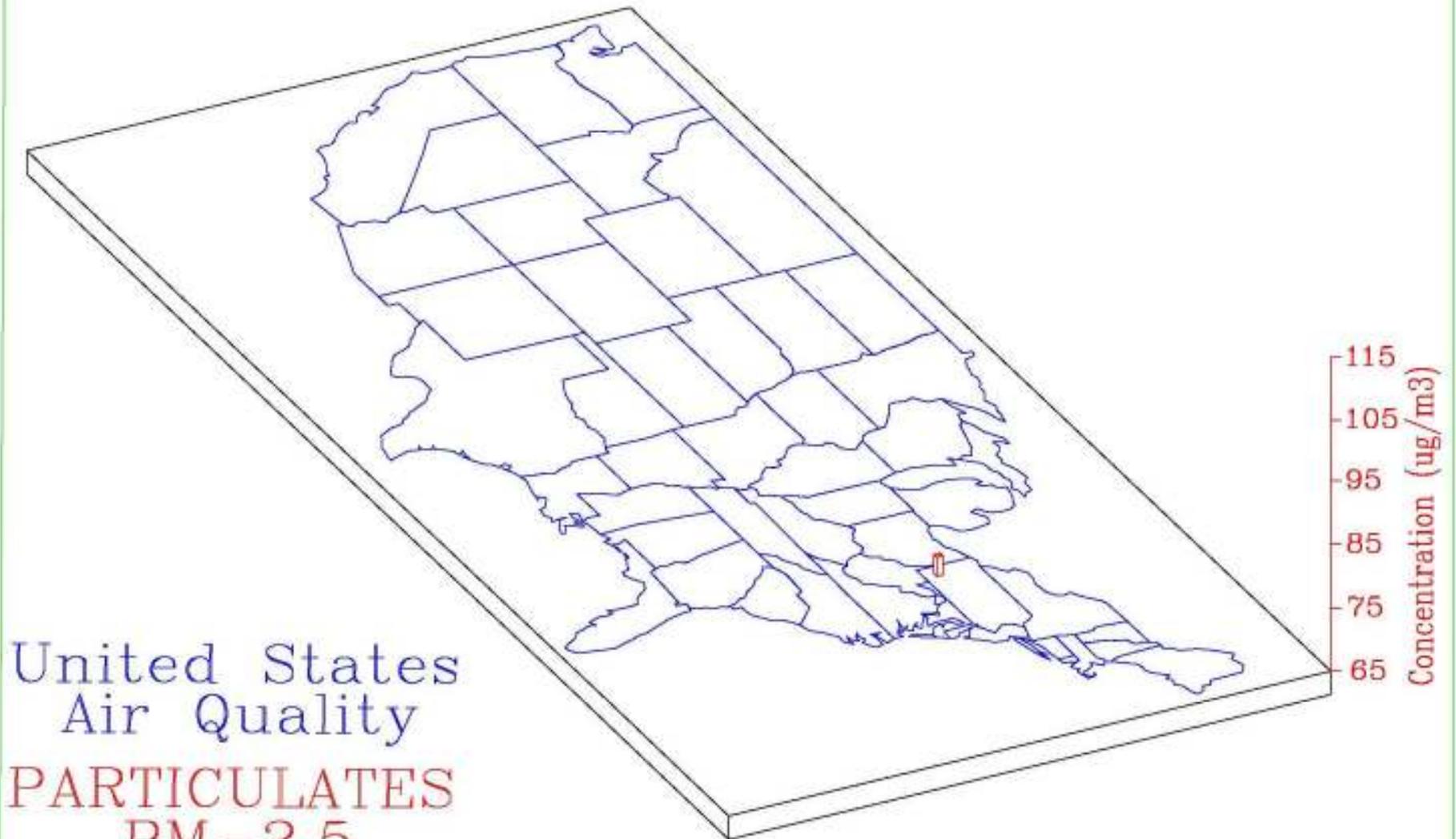
United States
Air Quality

PARTICULATES
PM-2.5

Severity of Annual
National Standard Exceedances

2003-2005

National Standard = 15 micrograms per cubic meter - annual mean concentration.
Based on 2003 thru 2005 data from US EPA's AQS database.



United States
Air Quality

PARTICULATES
PM-2.5

Severity of 24-hour
National Standard Exceedances

2003-2005

National Standard = 65 micrograms per cubic meter = 24-hour average concentration
Based on 2003 thru 2005 data from US EPA's AQS database.