

Regional Report

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Lake Michigan Air Directors Consortium

October 15, 2008

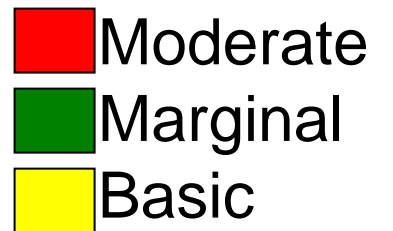
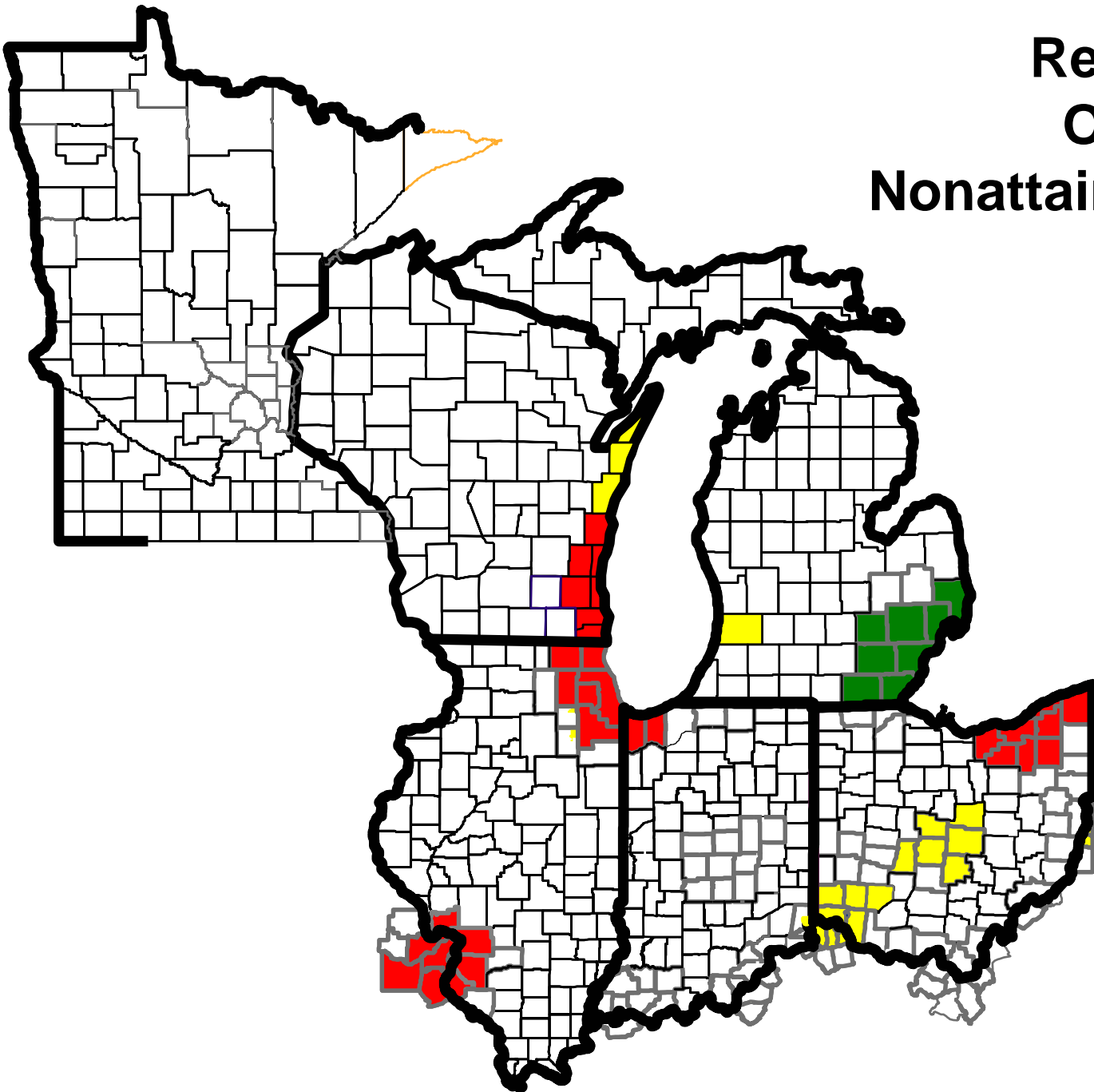
Air Quality Challenges for LADCO States

- 1997 PM_{2.5} and ozone standards
 - Develop State Implementation Plans (SIPs) – *late!!*
 - Attain/maintain standards
- 2006 PM_{2.5} and 2008 ozone standards
 - Designate areas as attainment/nonattainment
 - Develop SIPs
 - Attain/maintain standards
- Regional haze
 - Develop initial strategy to make reasonable progress – *late!!*
 - Provide 5-year progress reports and every 10-year SIPs
- Address mercury deposition, air toxics, greenhouse gases, and

National Ambient Air Quality Standards

| | 1997 Version | 2006/2008 Version |
|-------------------|---|---|
| Ozone | 0.08 ppm (8-hour) | 0.075 ppm (8-hour) |
| PM _{2.5} | 15 ug/m ³ (annual) 65 ug/m ³ (daily) | 15 ug/m ³ (annual) 35 ug/m ³ (daily) |

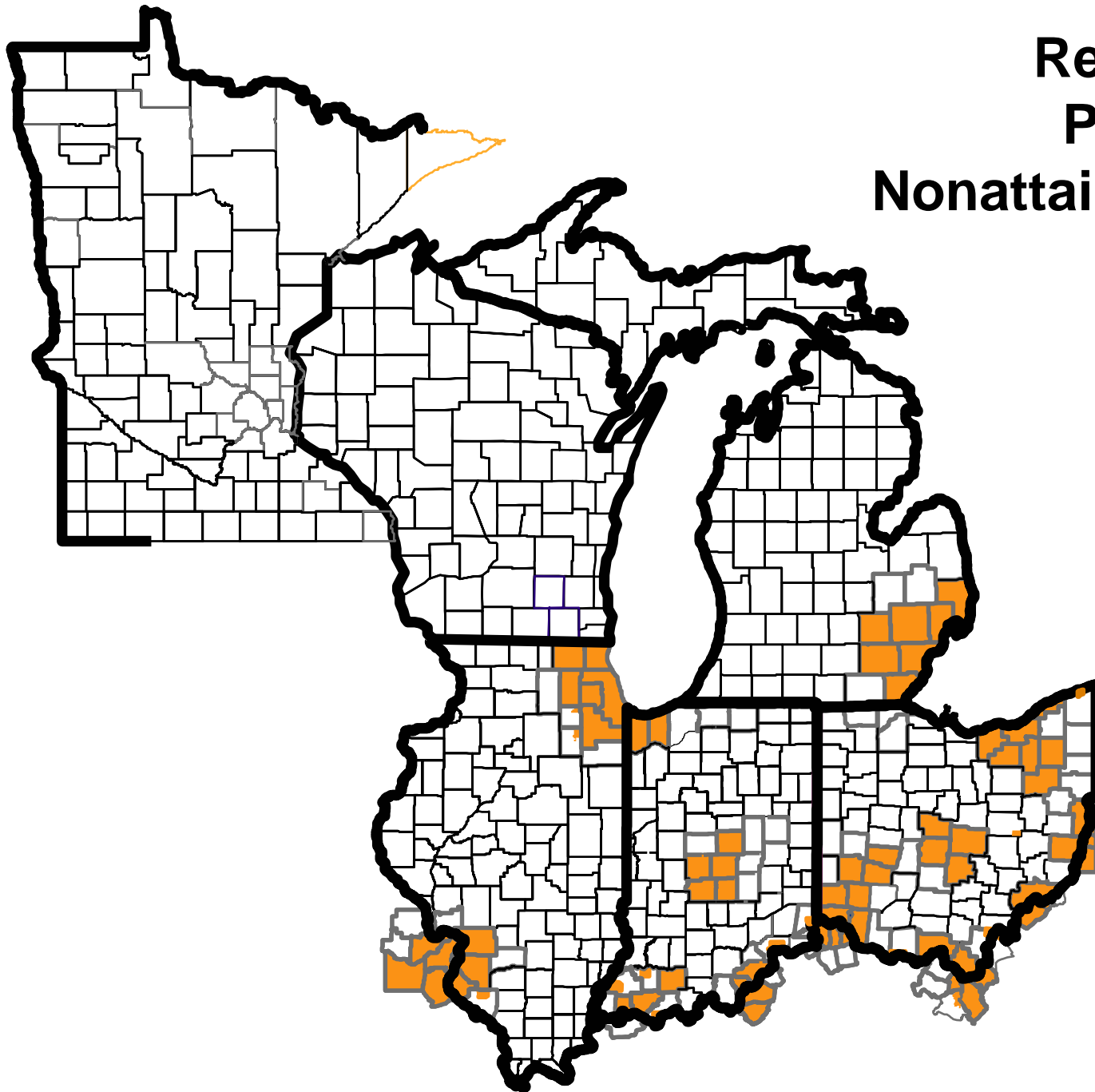
Region 5 Ozone Nonattainment Areas

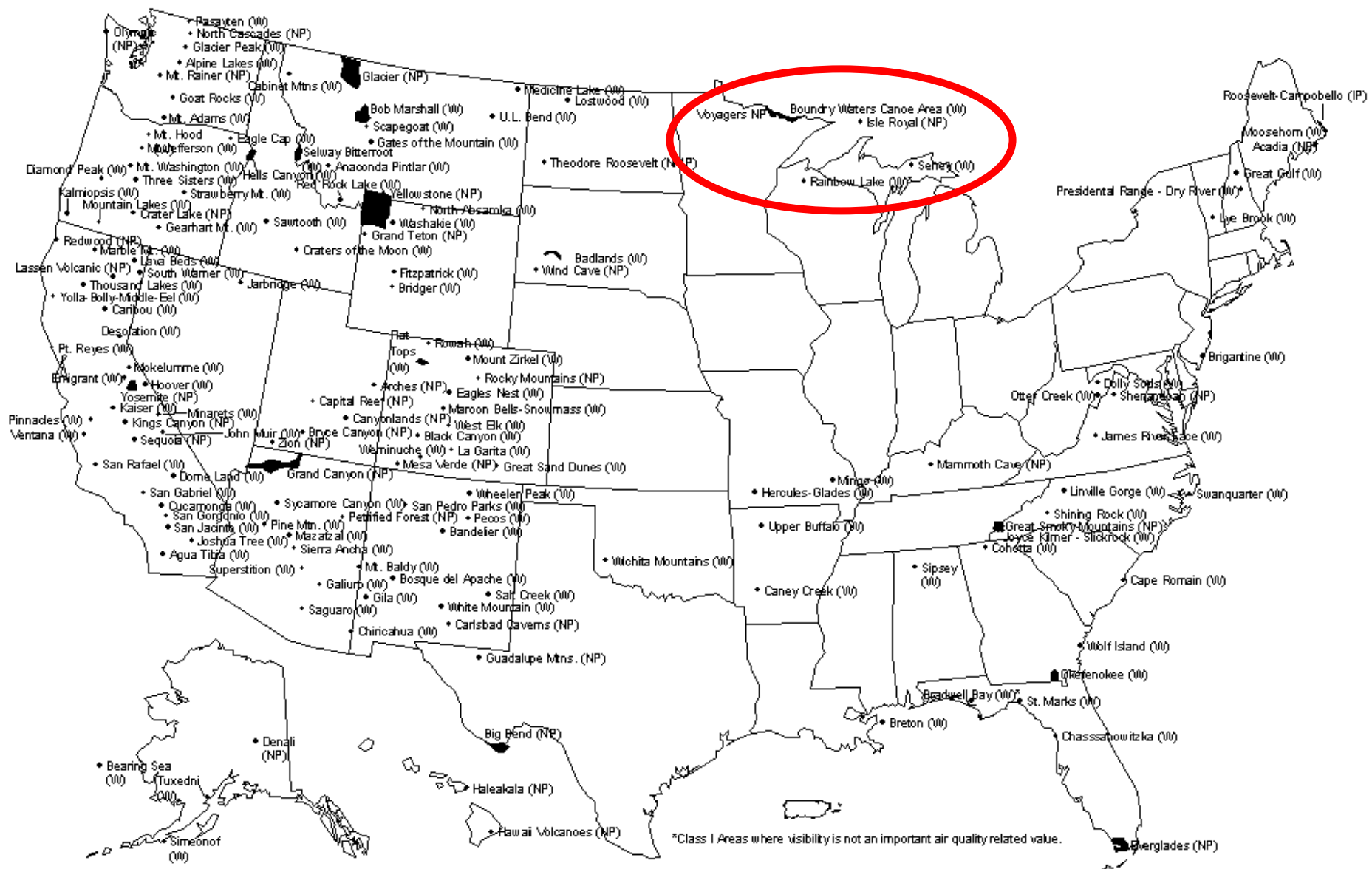


Region 5

PM 2.5

Nonattainment Areas





Legend:
 NP= National Park
 WV = Wilderness
 IP = International Park

Map of 156 National Park and Wilderness Areas Protected by EPA's Regional Haze Rule

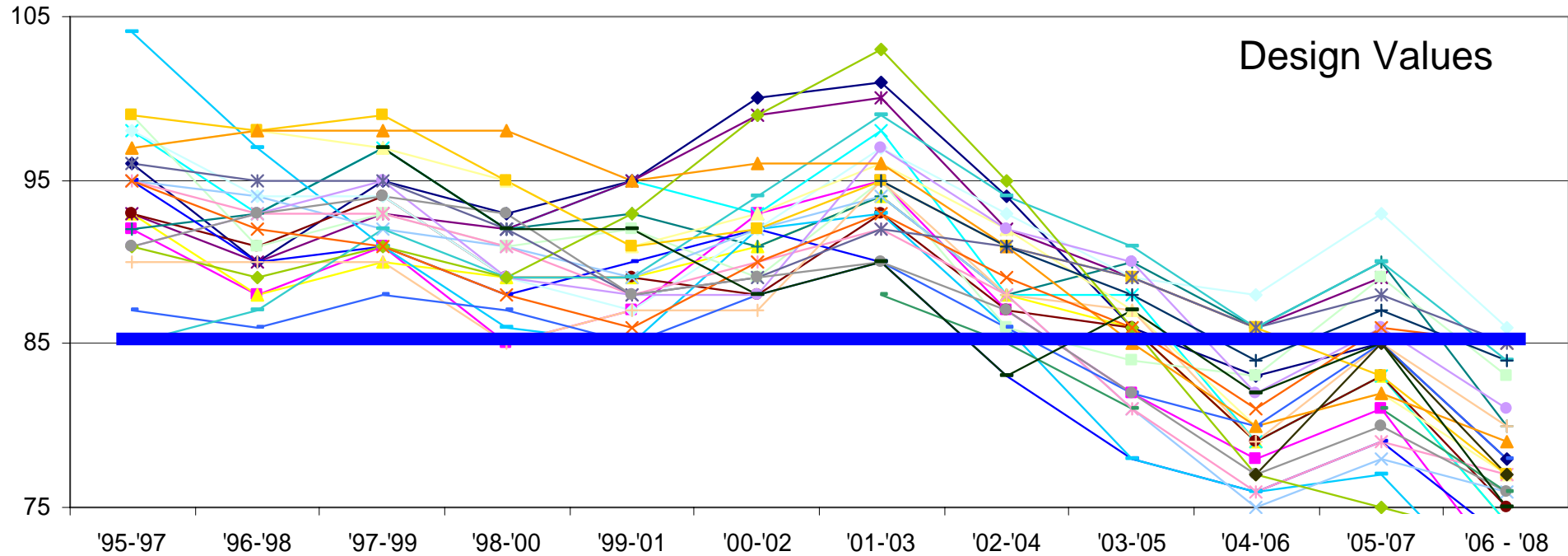
1997 Standards

Key Regulatory Dates

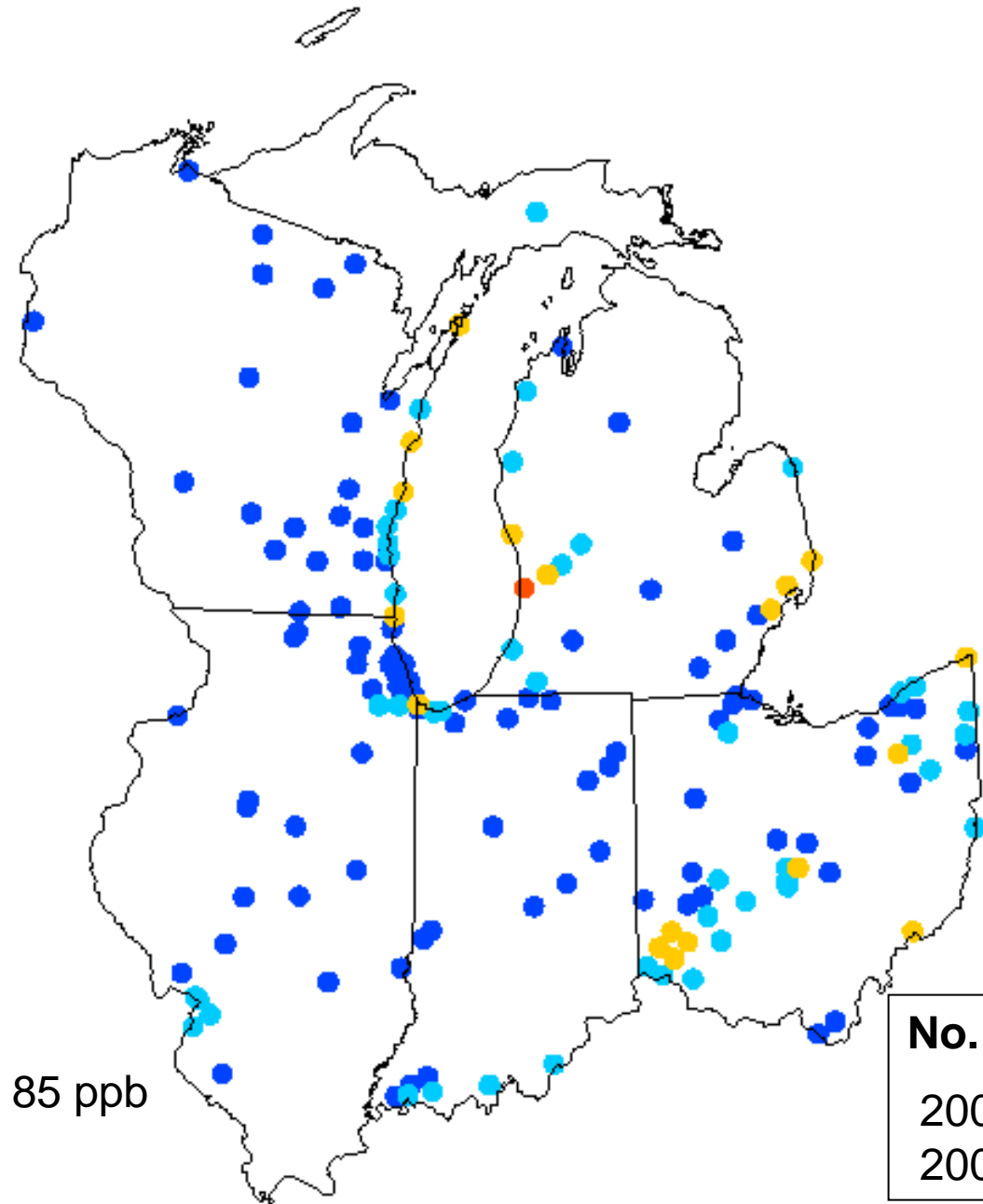
| | Ozone | PM_{2.5} | Haze |
|----------------------------|--|--|-----------------|
| Nonattainment Designations | April 15, 2004 <i>(June 15, 2004)</i> | Dec 17, 2004 <i>(April 5, 2005)</i> | ----- |
| SIPs due | June 2007 | April 2008 | Dec 2007 |
| Attainment dates | 2007/2009/2010 | 2010 | 2018 (2064) |

Ozone

Ozone Trends: LADCO Region



Ozone Design Values, 2005_2007



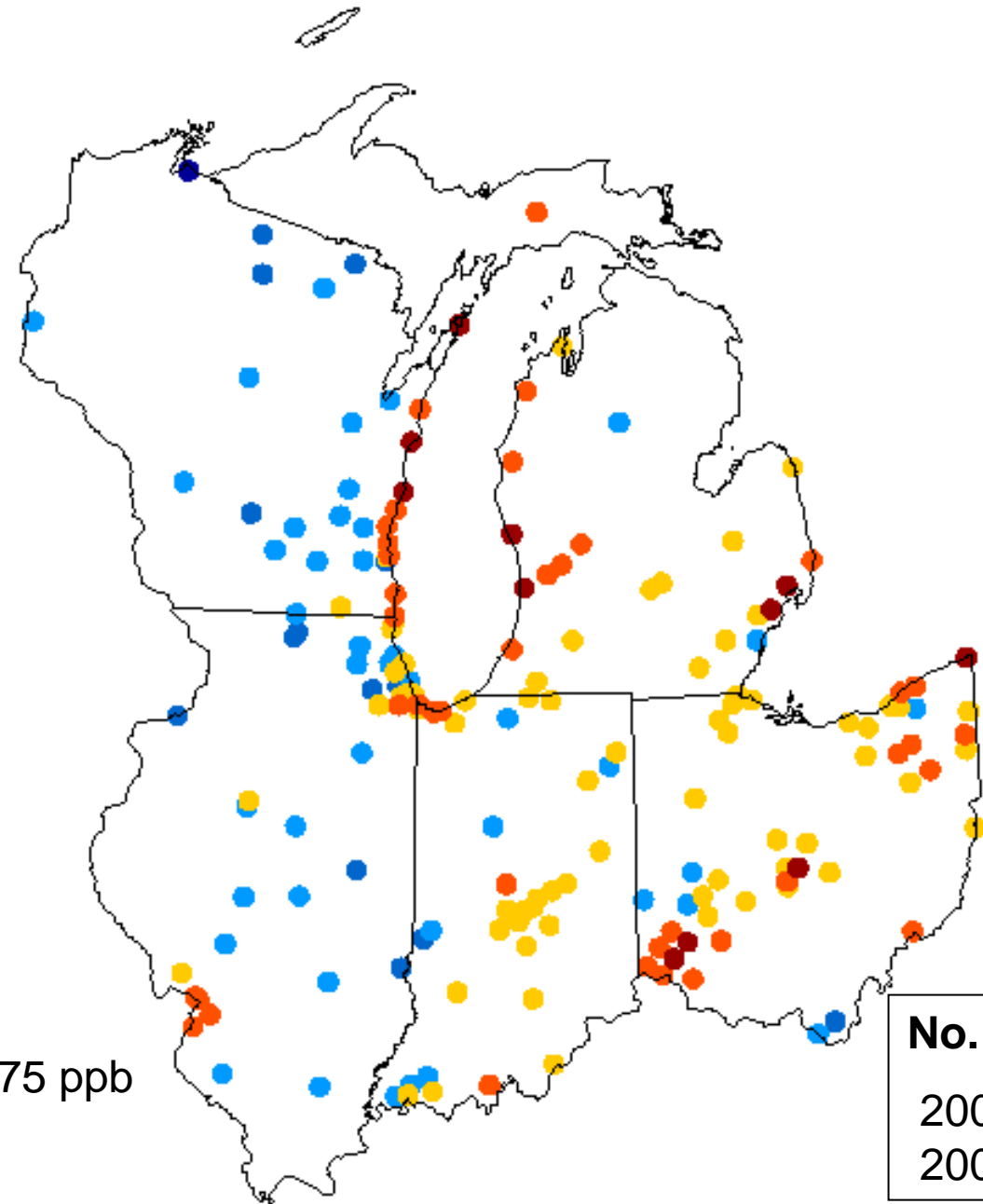
DV, in ppb

- 90+
- 85-89
- 80-84
- < 80

← 85 ppb

| No. Sites > NAAQS | |
|-----------------------------|----|
| 2005 - 2007 | 19 |
| 2006 - 2008 | 3 |

Ozone Design Values, 2005_2007



DV, in ppb

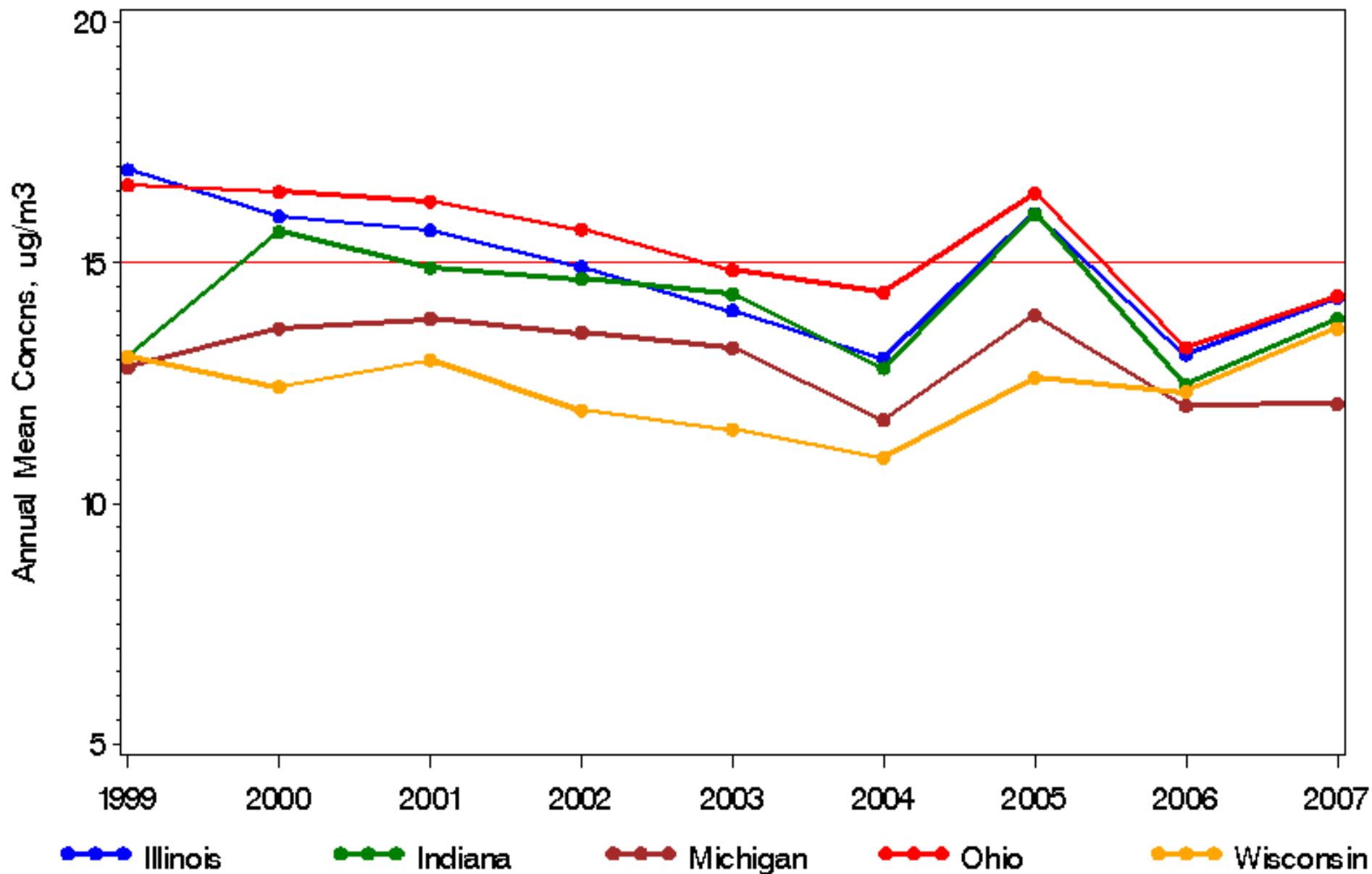
- 85+
- 81-85
- 76-80
- 71-75
- 66-70
- <66

75 ppb

| No. Sites > NAAQS | |
|-------------------|-----|
| 2005 - 2007 | 127 |
| 2006 - 2008 | 68 |

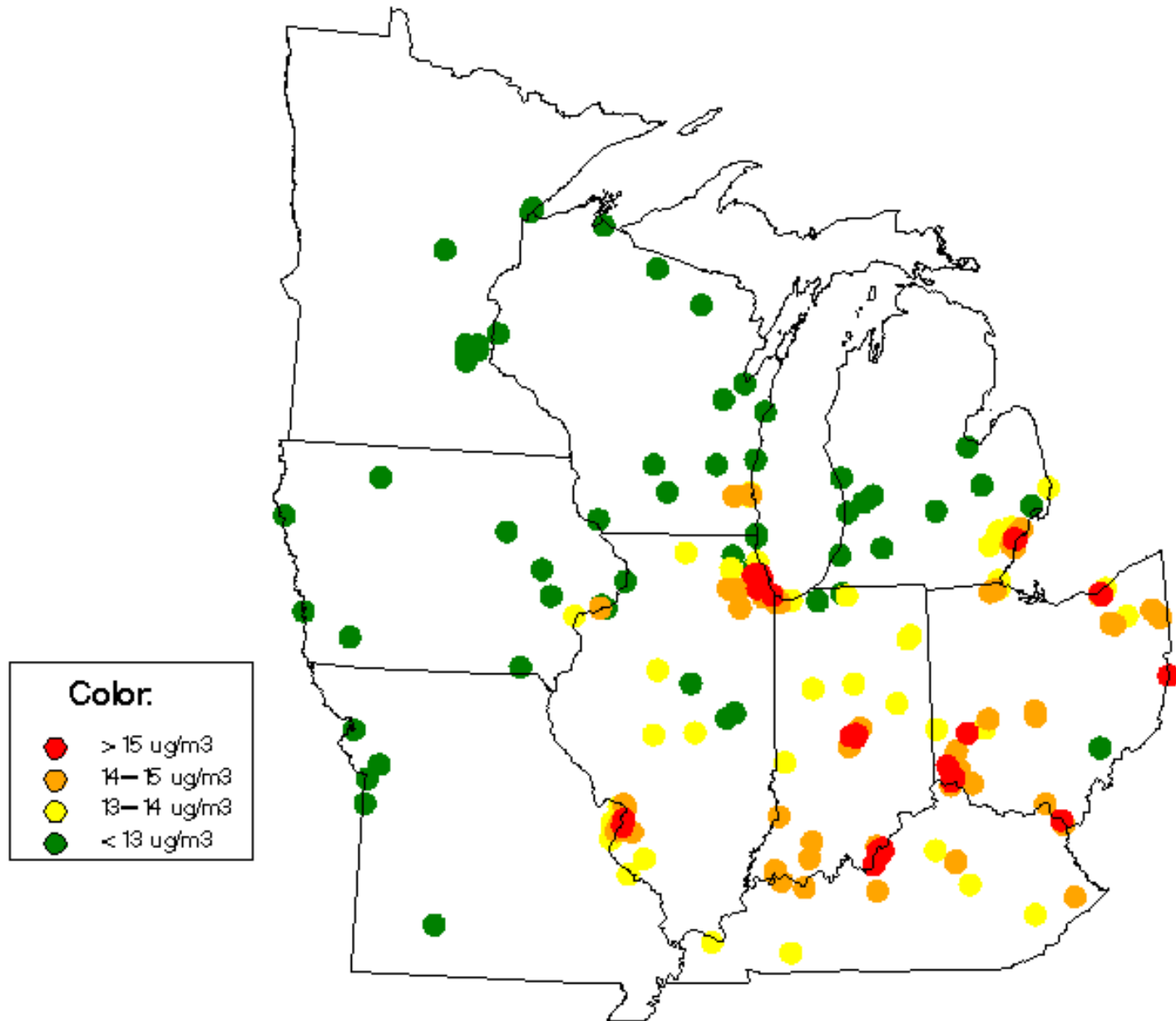
PM_{2.5}

PM2.5 Annual Mean Trends, LADCO States, 1999–2007

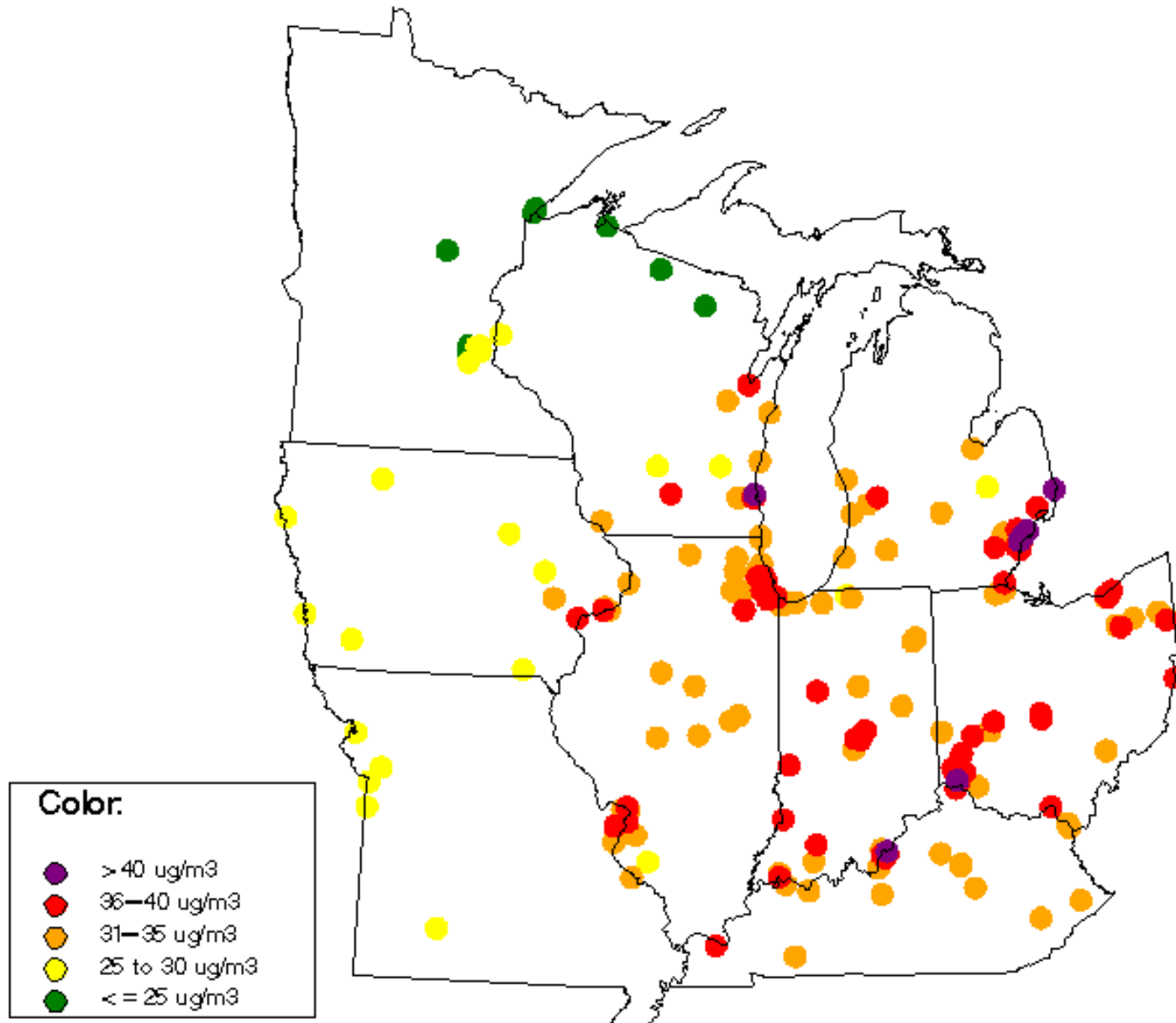


trends for monitors with at least 8 years of data

PM_{2.5} Design Value: Annual Standard



PM_{2.5} Design Value: Daily Standard



Regional Haze

Isle Royale National Park, Michigan

Current Conditions

Natural Conditions



Regional Air Quality Analyses for Ozone, PM_{2.5}, and Regional Haze:

Final Technical Support Document



April 25, 2008

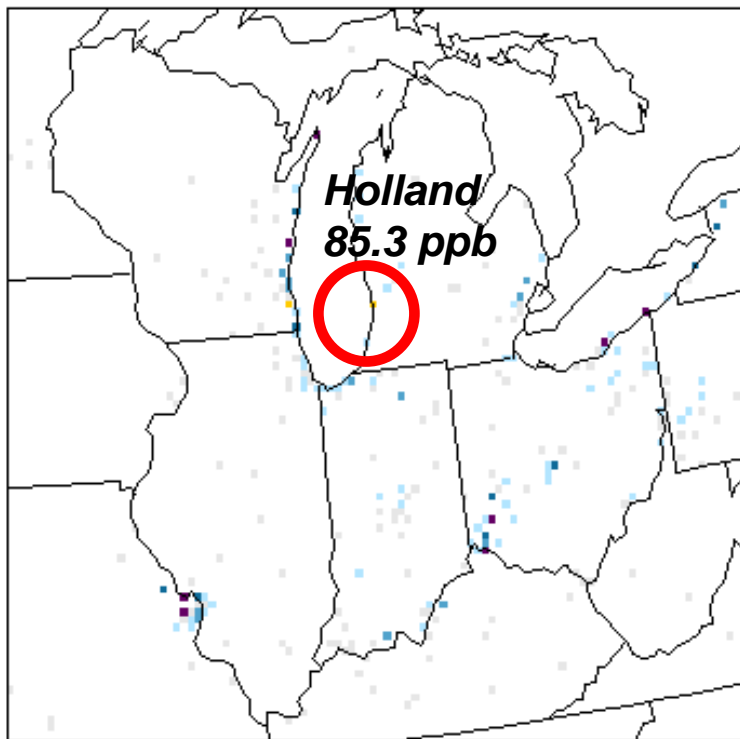
States of Illinois, Indiana, Michigan, Ohio, and Wisconsin

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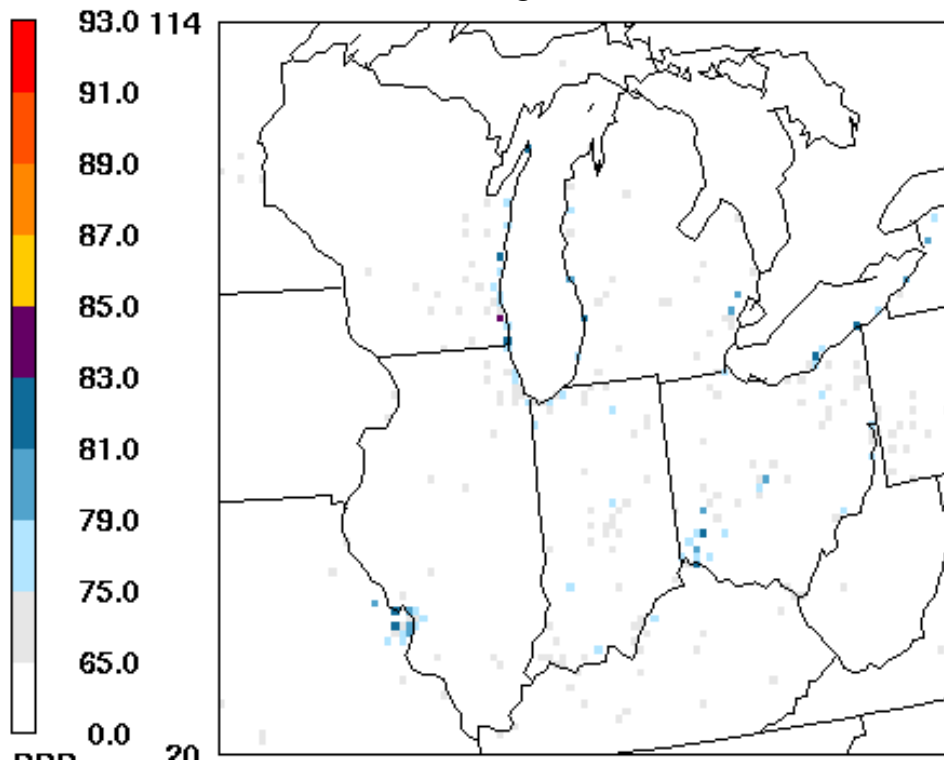
- Introduction
- Ambient Data Analyses
- Air Quality Modeling
- Attainment Demonstration for Ozone & PM_{2.5}
- Reasonable Progress Assessment for Regional Haze
- Summary

Modeling Results: Ozone

2009

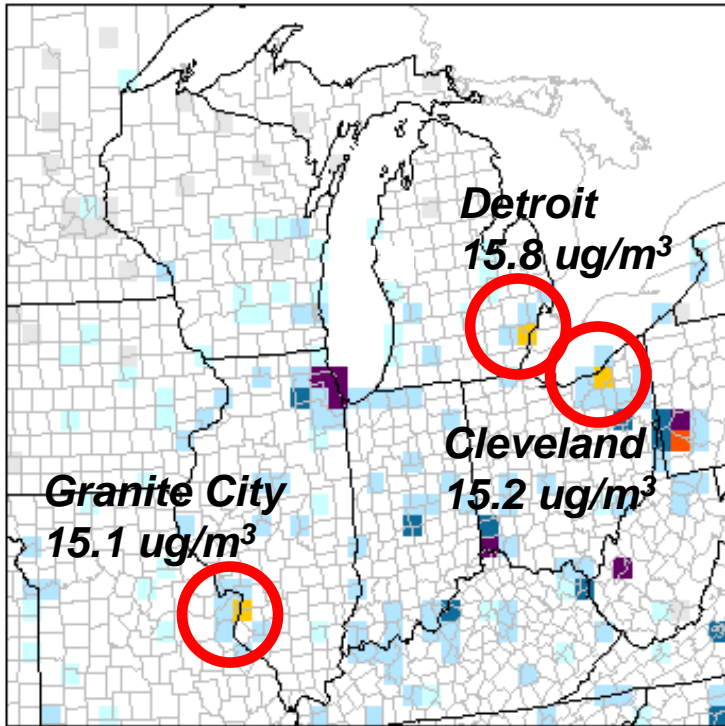


2012

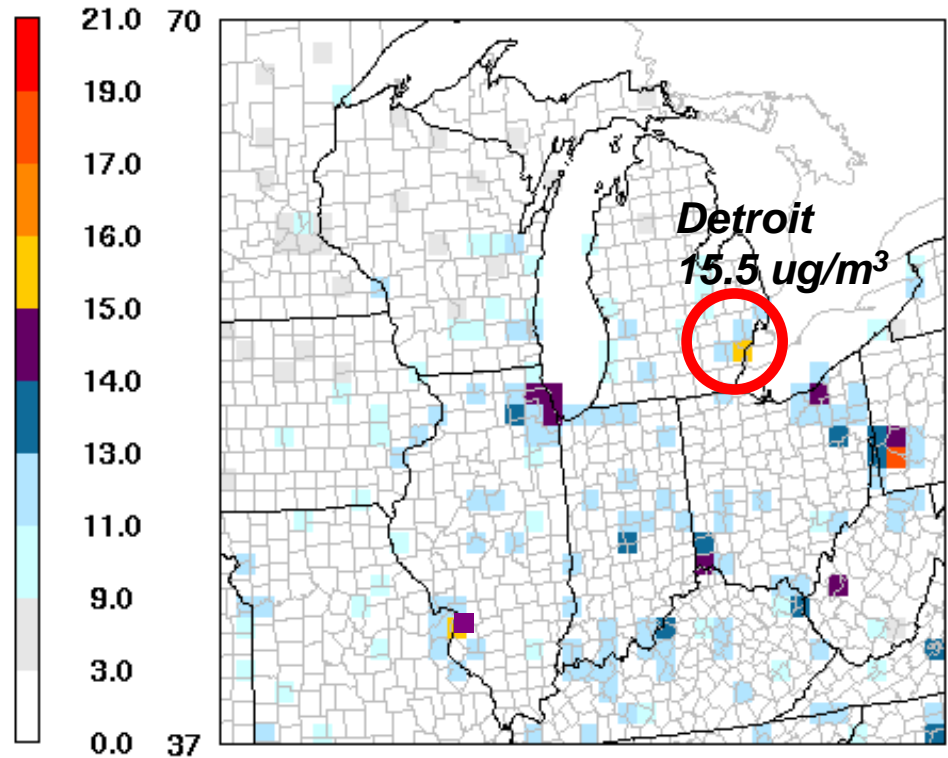


Modeling Results: PM_{2.5}

2009



2012



Existing Control Programs

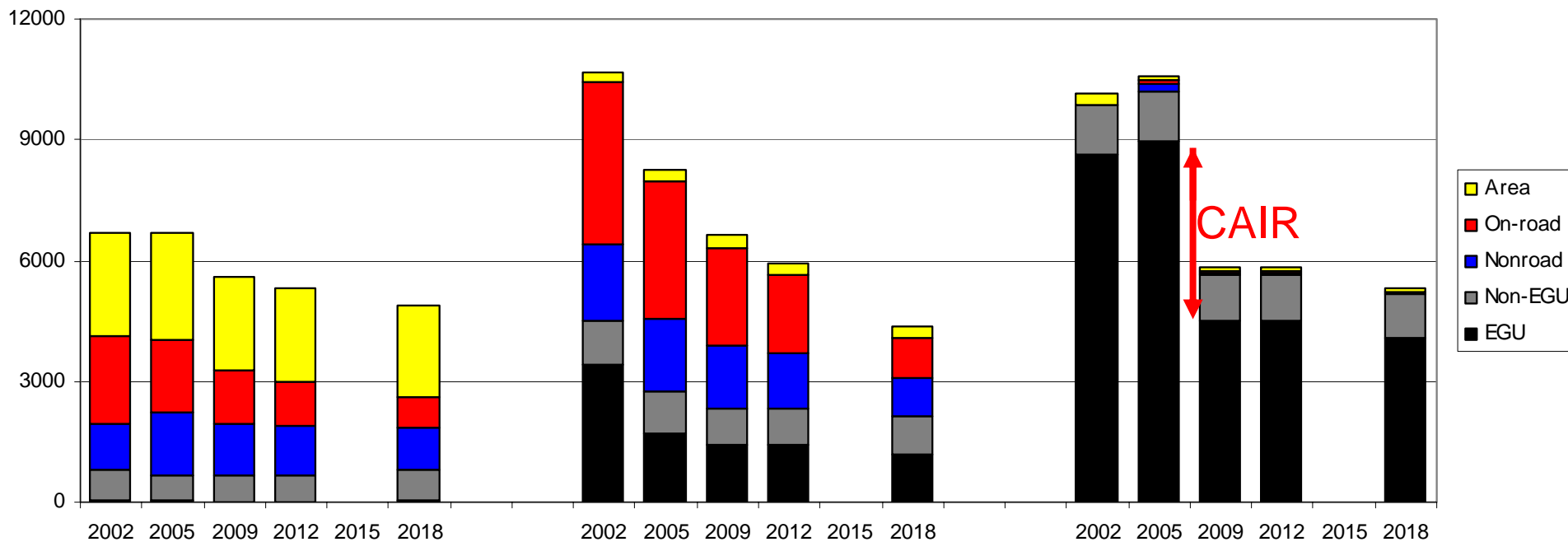
- **On-Highway Mobile Sources**
 - Tier II/Low sulfur fuel
 - Inspection/Maintenance programs (nonattainment areas)
 - Reformulated gasoline (nonattainment areas)
- **Off-Highway Mobile Sources**
 - Federal control programs incorporated into NONROAD model (e.g., nonroad diesel rule), plus the evaporative Large Spark Ignition and Recreational Vehicle standards
 - Heavy-duty diesel (2007) engine standard/Low sulfur fuel
 - Federal railroad/locomotive standards
 - Federal commercial marine vessel engine standards
- **Power Plants**
 - Title IV (Phases I and II)
 - NO_x SIP Call
 - Clean Air Interstate Rule – ***vacated!!!***
- **Other Point Sources**
 - VOC 2-, 4-, 7-, and 10-year MACT standards
 - Combustion turbine MACT
 - Industrial boiler/process heater/RICE MACT
 - Miscellaneous consent decrees and settlement agreements
- **Area Sources**
 - Aerosol coatings (new rule)
 - Architectural and industrial maintenance (AIM) coatings (amendments)
 - Household and institutional consumer products (amendments)
 - Portable fuel containers (Mobile Source Air Toxics rule)

Regional Emissions (TPD)

VOC

NOx

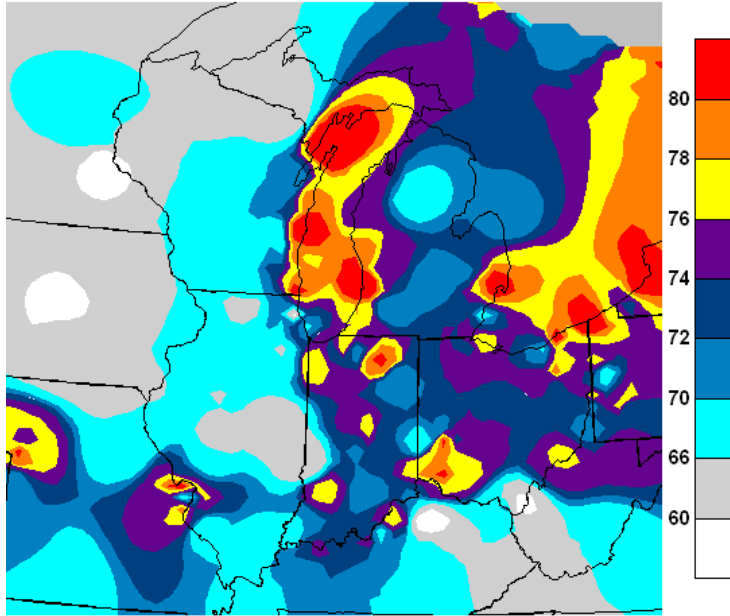
SO2



Ozone Concentrations: 2009

“Legally Enforceable”

8-HR O3: 2009M3R6s1b_05summer

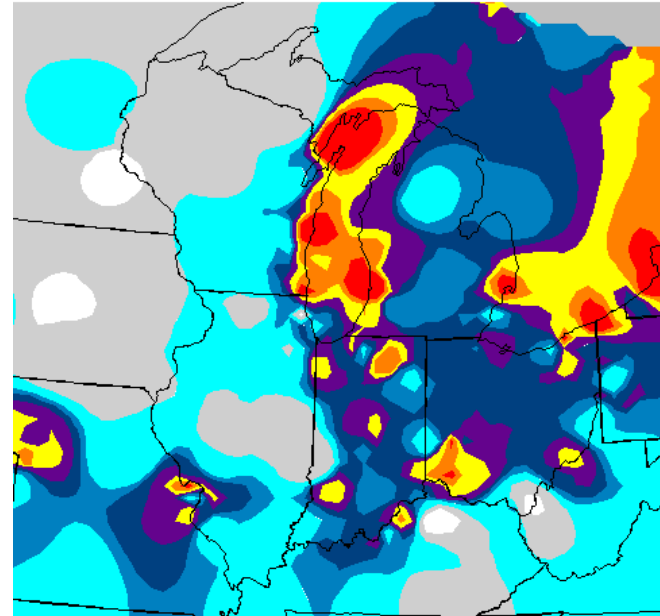


12:00 am EST September 24, 2005

PPB

CAIR

8-HR O3: 2009M3R5.1s1a_05summer



12:00 am EST September 24, 2005

Number of Sites > NAAQS

0.08 ppm/0.075 ppm

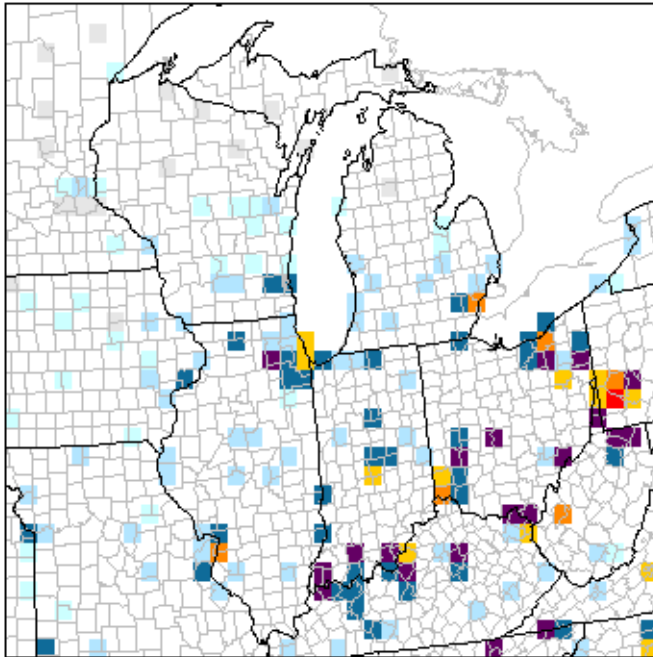
“Legally Enforceable”

CAIR

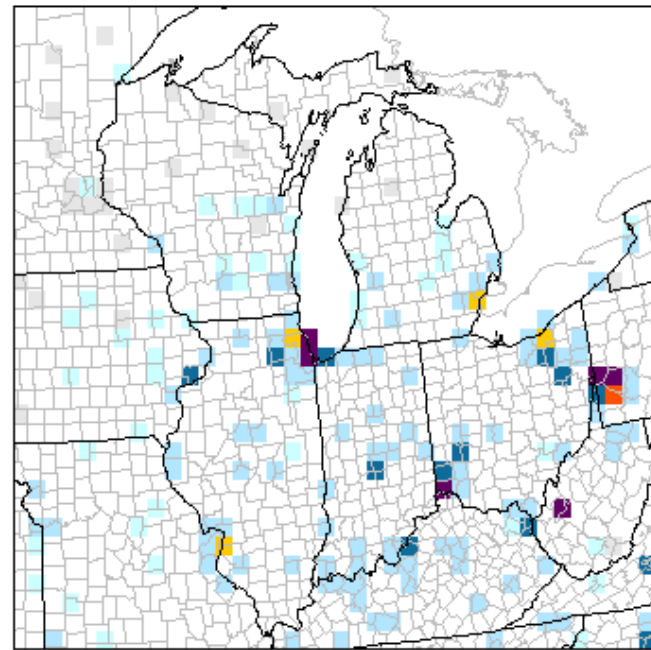
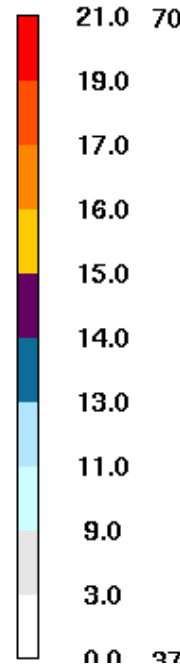
| | | |
|--------------|-------------|-------------|
| IL | 0/6 | 0/4 |
| IN | 0/9 | 0/5 |
| MI | 1/12 | 1/12 |
| OH | 0/25 | 0/21 |
| WI | 0/10 | 0/10 |
| Total | 1/62 | 1/52 |

PM_{2.5} Annual Concentrations: 2009

“Legally Enforceable”



CAIR



| | Number of Sites > NAAQS | |
|--------------|-------------------------|----------|
| | “Legally Enforceable” | CAIR |
| IL | 4 | 1 |
| IN | 2 | 0 |
| MI | 2 | 1 |
| OH | 12 | 1 |
| WI | 0 | 0 |
| Total | 20 | 3 |

Upcoming Challenges

2006/2008 Standards Key Regulatory Dates

| | Ozone | PM_{2.5} | Haze |
|----------------------------|--|---|-------------|
| Nonattainment Designations | March 2010 <i>(effective date?)</i> | December 2008 <i>(effective date?)</i> | ----- |
| SIPs due | 2013 | 2011 (2012?) | Dec 2012 |
| Attainment dates | 2013 – 2030 | 2013 (2014?) | 2018 (2064) |