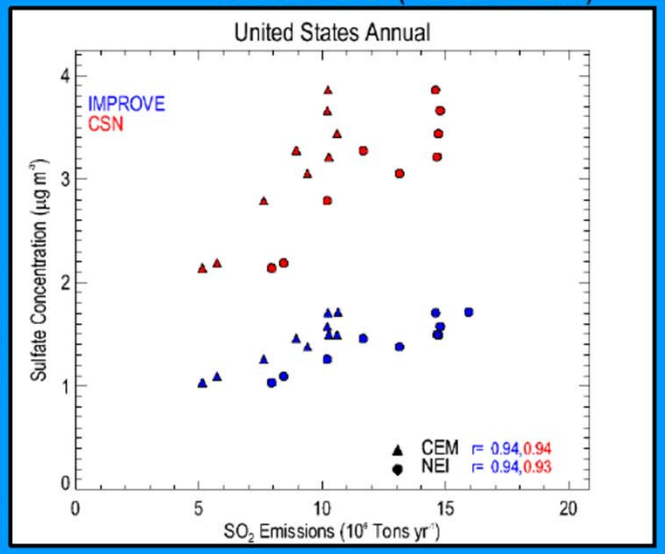
Implications: Natural Background

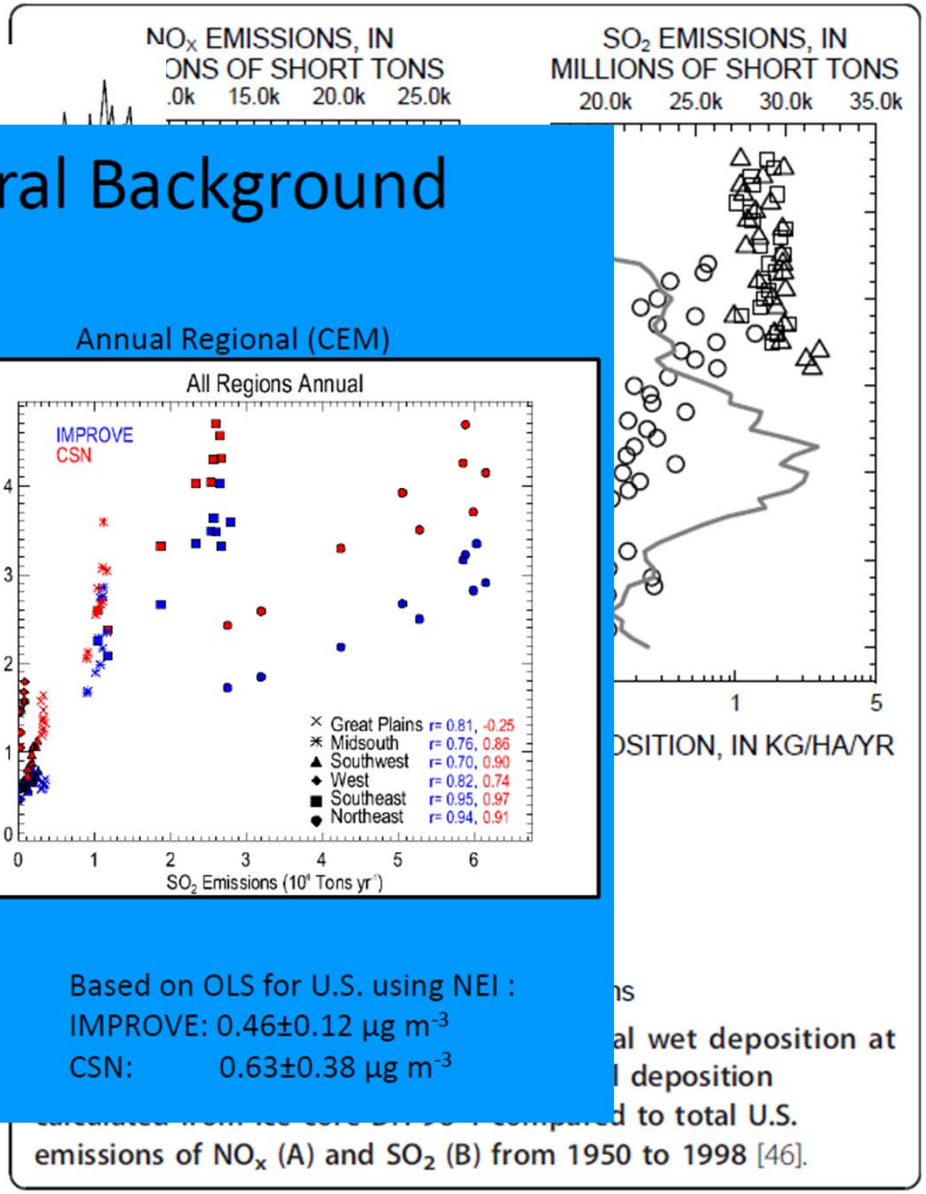
Annual U.S. (NEI and CEM)



RHR Natural Background levels for sulfate ion concentrations :
East : 0.17 μg m^{-3}
West: 0.09 μg m^{-3}

Annual Regional (CEM)

Based on OLS for U.S. using NEI :
IMPROVE: 0.46±0.12 μg m^{-3}
CSN: 0.63±0.38 μg m^{-3}



Asian aerosols in North America:
Frequency and concentration of fine dust

Richard A. VanCuren

Research Divisi

Thomas A.
DELTA Group,

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University
Bothell, W
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January 2

In this study we have evaluated the role of wildfires on

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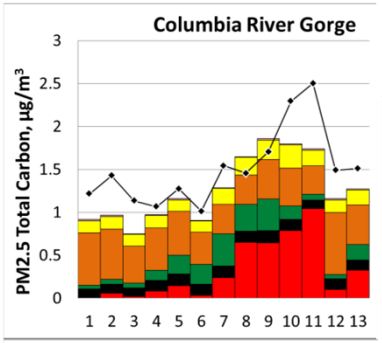
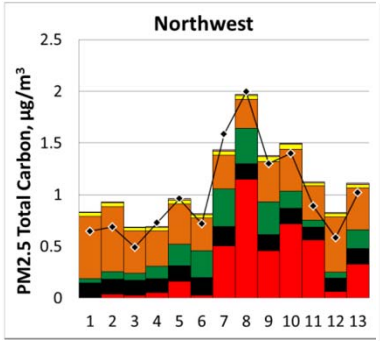
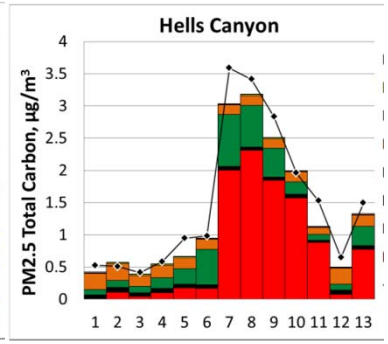
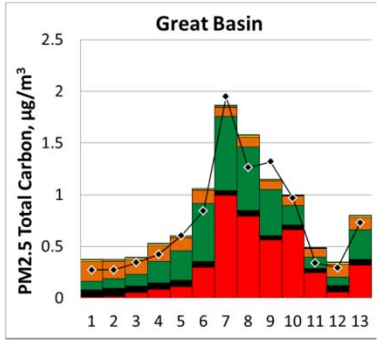
d to total U.S.

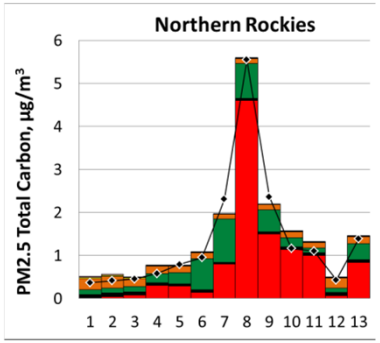
Refined 2006–08 Source App

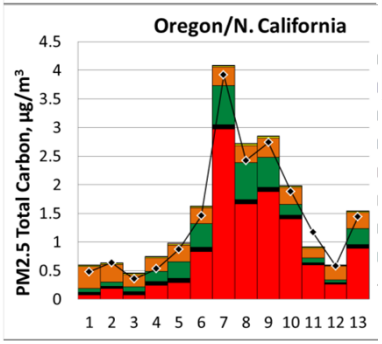


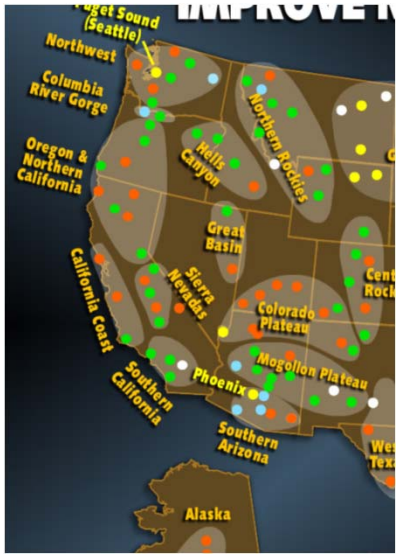


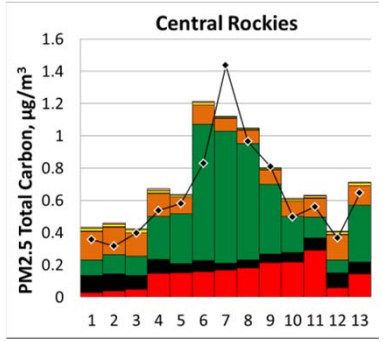


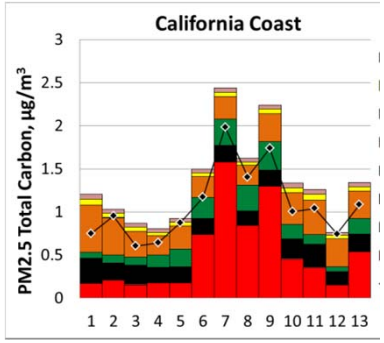


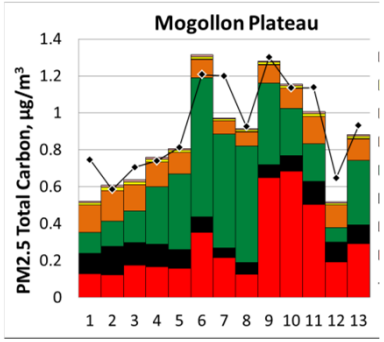


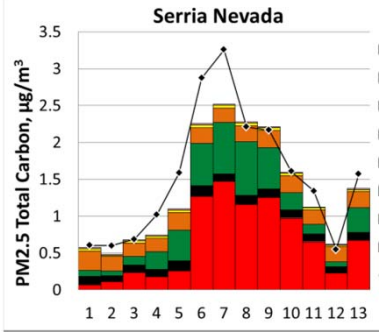


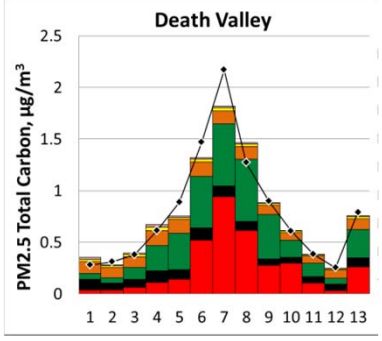


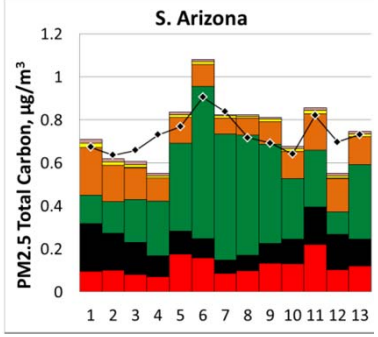


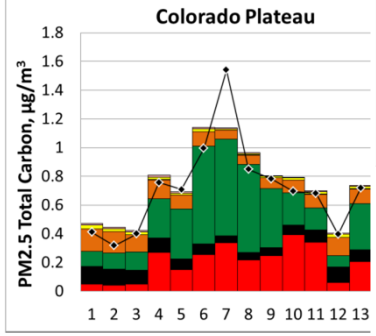


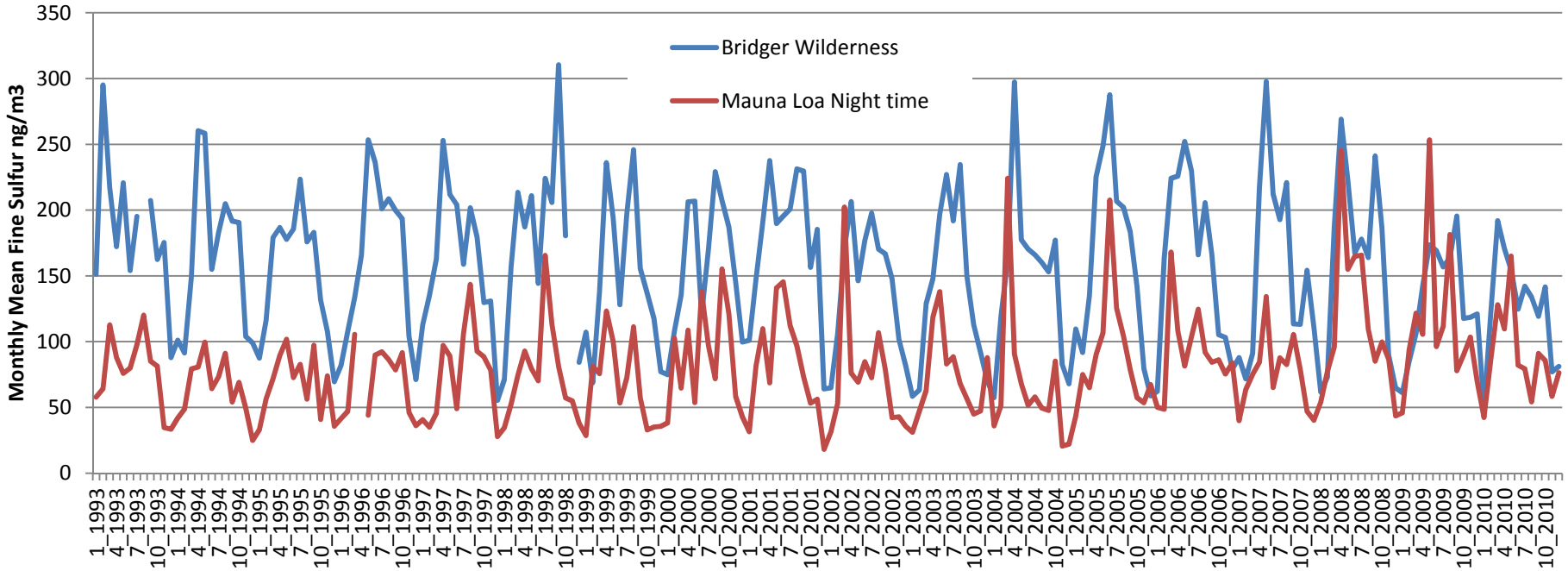











Monthly Mean Fine Sulfur ng/m3
350
300
250
200
150
100
50
0
Bridger Wilderness
Mauna Loa Night time
1_1993
4_1993
7_1993
10_1993
1_1994
4_1994
7_1994
10_1994
1_1995
4_1995
7_1995
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1_1996
4_1996
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1_2008
4_2008
7_2008
10_2008
1_2009
4_2009
7_2009
10_2009
1_2010
4_2010
7_2010
10_2010

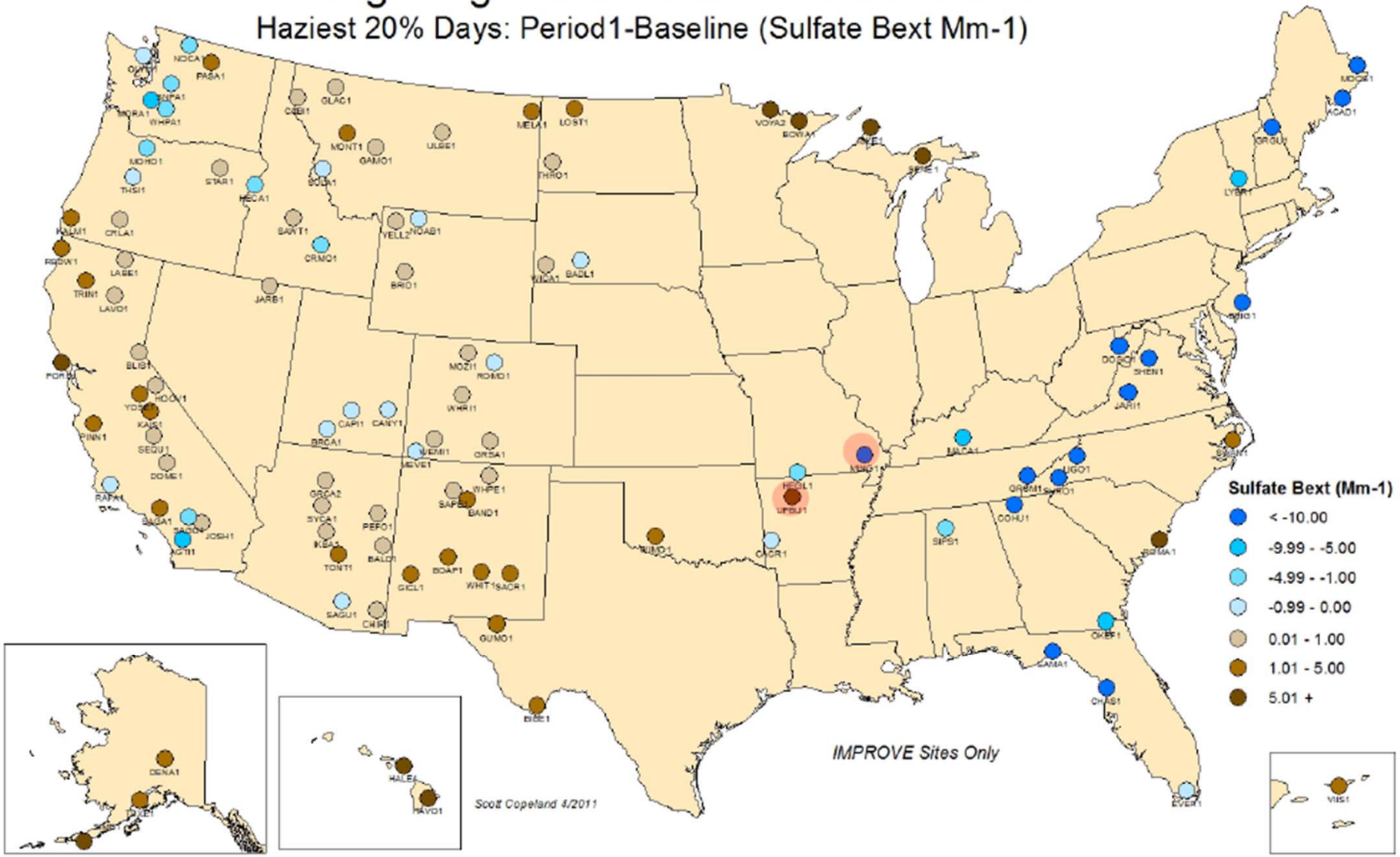
Should IMPROVE Steering Committee assist in developing NC3 values?

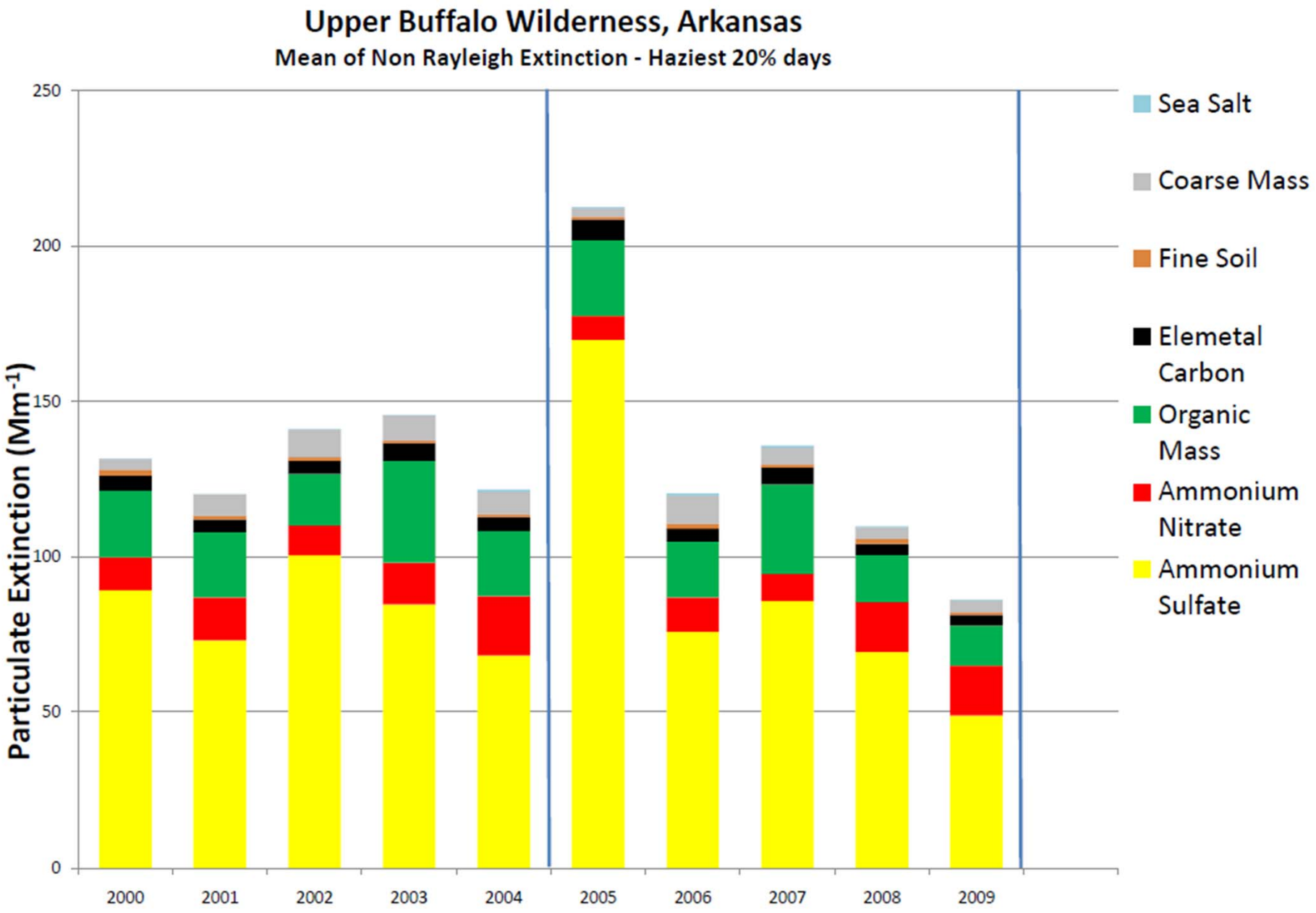
MAX Data Set

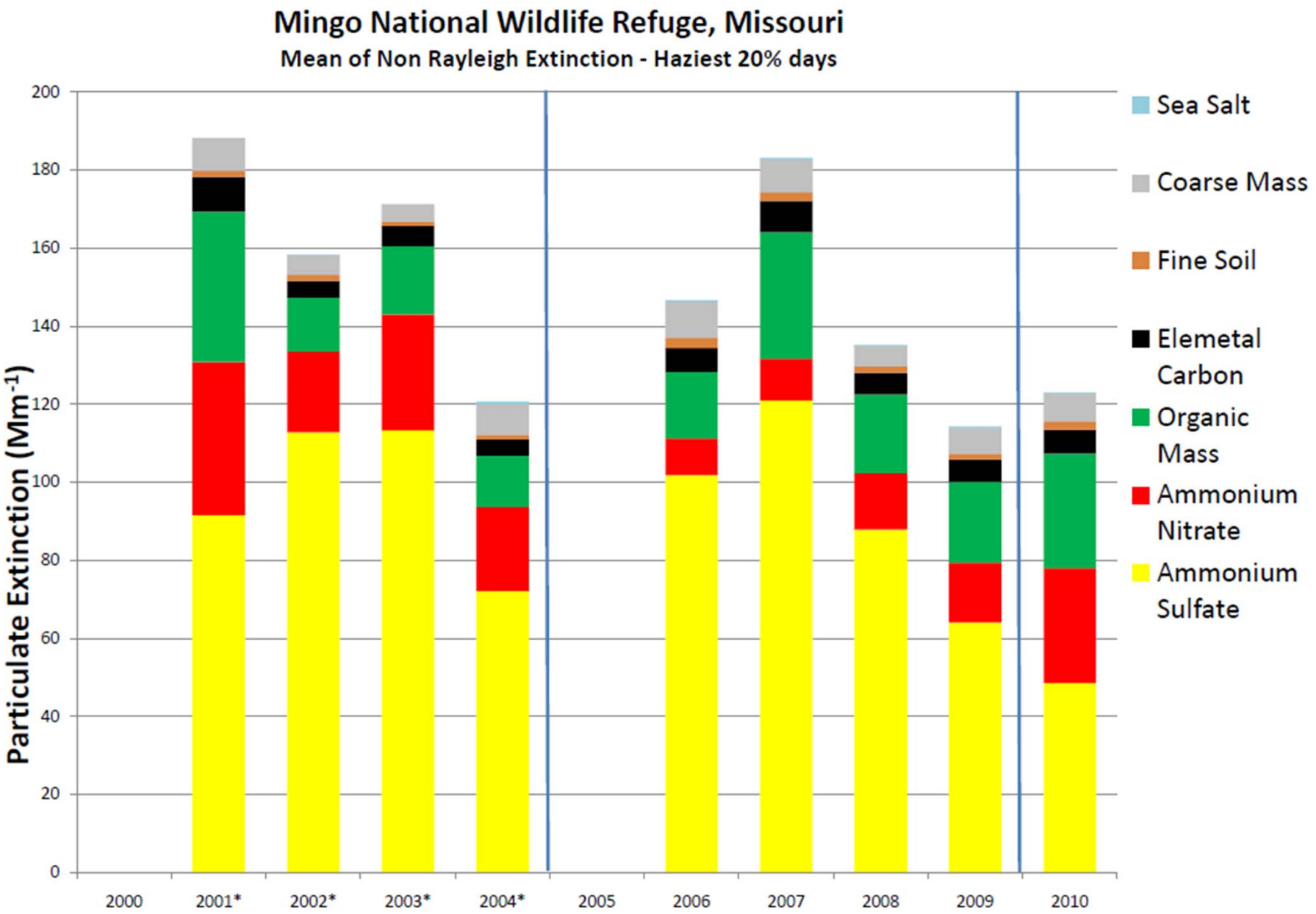
Why?

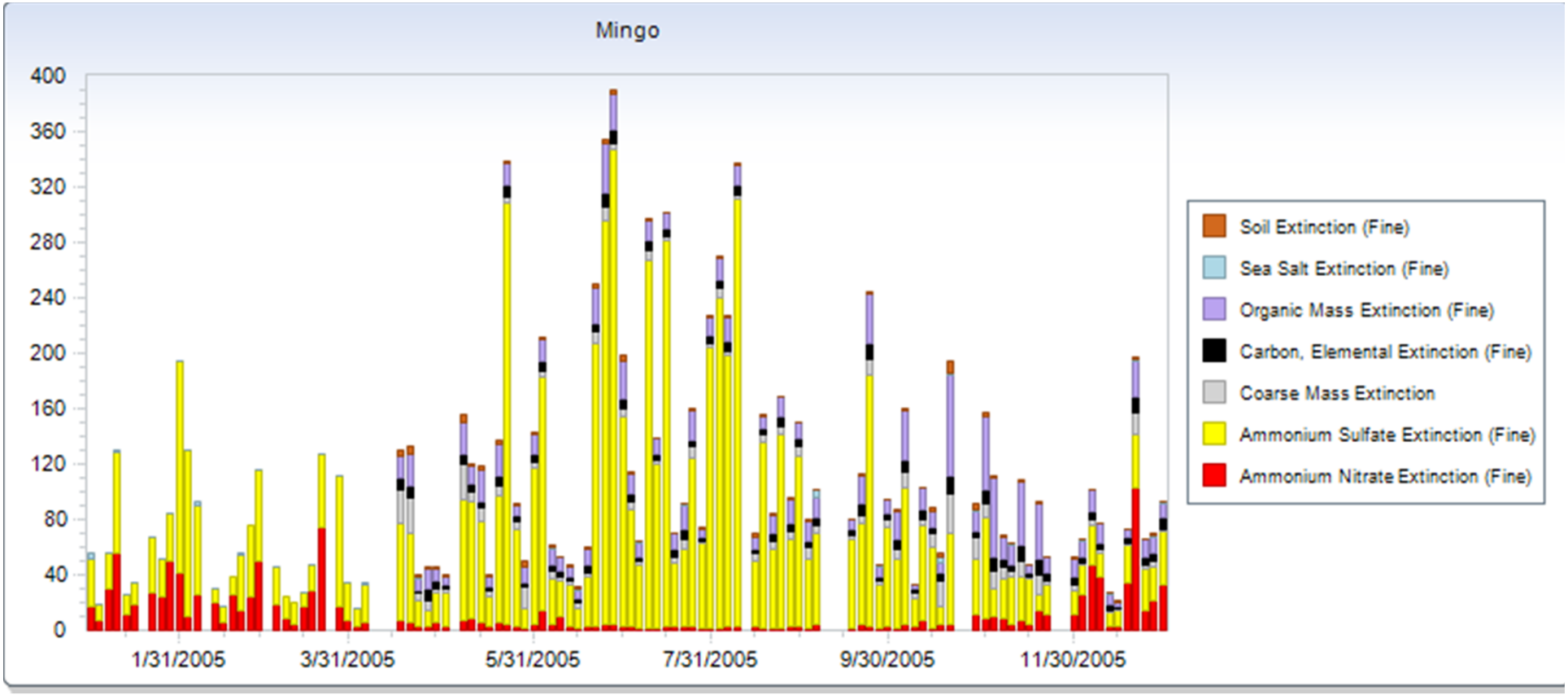
Tracking Progress 2000-2004 to 2005-2009

Haziest 20% Days: Period1-Baseline (Sulfate Bext Mm-1)




Upper Buffalo Wilderness, Arkansas
Mean of Non Rayleigh Extinction - Haziest 20% days
Particulate Extinction (Mm-1)
250
200
150
100
50
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Sea Salt
Coarse Mass
Fine Soil
Elemetal Carbon
Organic Mass
Ammonium Nitrate
Ammonium Sulfate


Mingo National Wildlife Refuge, Missouri
Mean of Non Rayleigh Extinction - Haziest 20% days
Particulate Extinction (Mm-1)
200
180
160
140
120
100
80
60
40
20
0
2000
2001*
2002*
2003*
2004*
2005
2006
2007
2008
2009
2010
Sea Salt
Coarse Mass
Fine Soil
Elemetal Carbon
Organic Mass
Ammonium Nitrate
Ammonium Sulfate


Mingo
400
360
320
280
240
200
160
120
80
40
0
1/31/2005
3/31/2005
5/31/2005
7/31/2005
9/30/2005
11/30/2005
Soil Extinction (Fine)
Sea Salt Extinction (Fine)
Organic Mass Extinction (Fine)
Carbon, Elemental Extinction (Fine)
Coarse Mass Extinction
Ammonium Sulfate Extinction (Fine)
Ammonium Nitrate Extinction (Fine)

Examples:

“Easy”

- Samples offset 12/24 hours
- Samples with brief power outage
- X module available
- Extinction with missing data would still be worst 20%

“Harder”

- Extinction with substitution still in best 20%
- Allow automatic substitution of any missing values subject to RMSE criteria
- Split Flows