

# Fires Summit – afternoon session preparation

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November 3, 2014

# Western ozone, PM, visibility impairment precursors & GHGs

## Why do we have to do more than inventory fire emissions?

- Power plants decreasing markedly
- Mobile sources controlled
- Fire activity and effects are huge - increasing, future dominant source?
- Biogenics – change, land use/mgmt. impacts?
- Drought and climate change
- Oil & gas activity/intensity increasing ...
- Population growth
  - Concentrated in urban areas
  - More of us living in exurbia, playing in rural areas
  - Living in the Anthropocene...



# WestJumpAQMS (<http://www.wrapair2.org/WestJumpAQMS.aspx>)

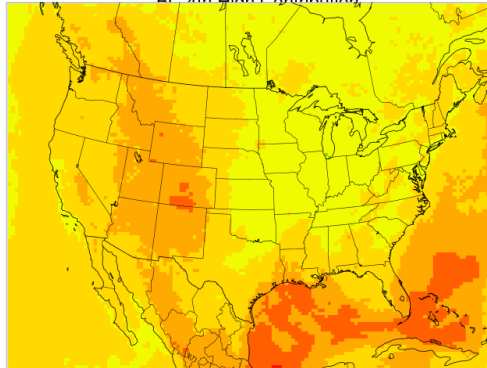
## “Other Sources” Max Contrib. 4<sup>th</sup> High DMAX8 Ozone

### Boundary Conditions

### Natural

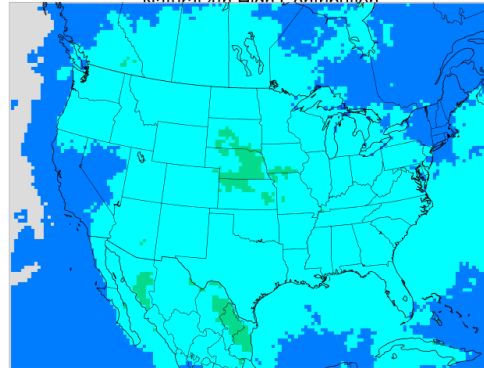
### Anthropogenic

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq 0$  ppb  
BC 4th High Contribution



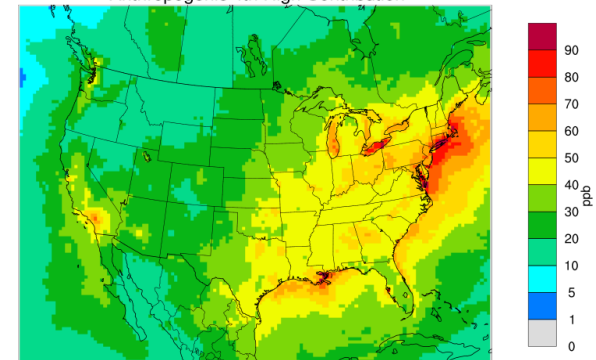
Max(82,2) = 80.37

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq 0$  ppb  
Natural 4th High Contribution



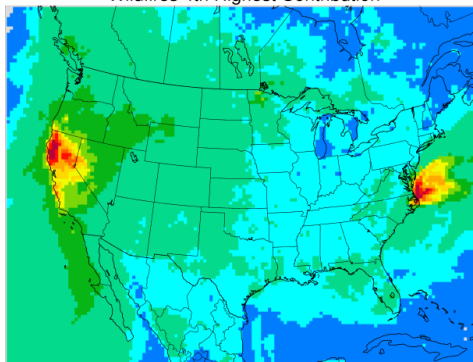
Max(70,11) = 12.84

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq 0$  ppb  
Anthropogenic 4th High Contribution



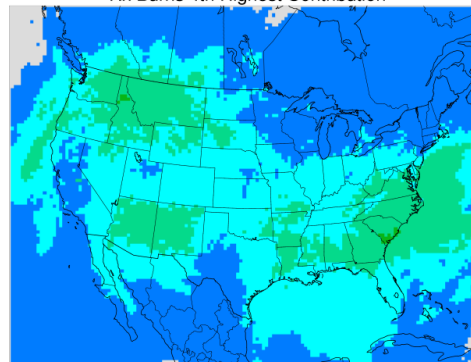
Max(133,70) = 110.89

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq 0$  ppb  
Wildfires 4th Highest Contribution



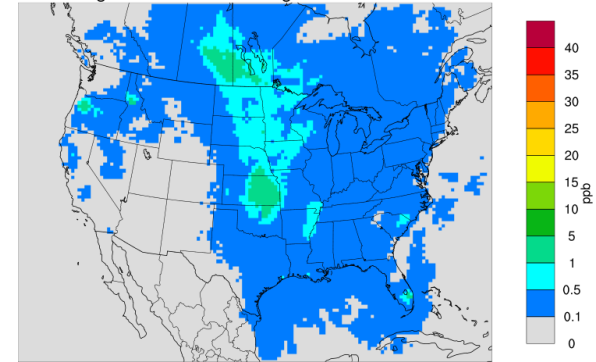
Max(129,53) = 60.13

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq 0$  ppb  
Rx Burns 4th Highest Contribution



Max(116,41) = 6.16

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq 0$  ppb  
Agricultural Burns 4th Highest Contribution

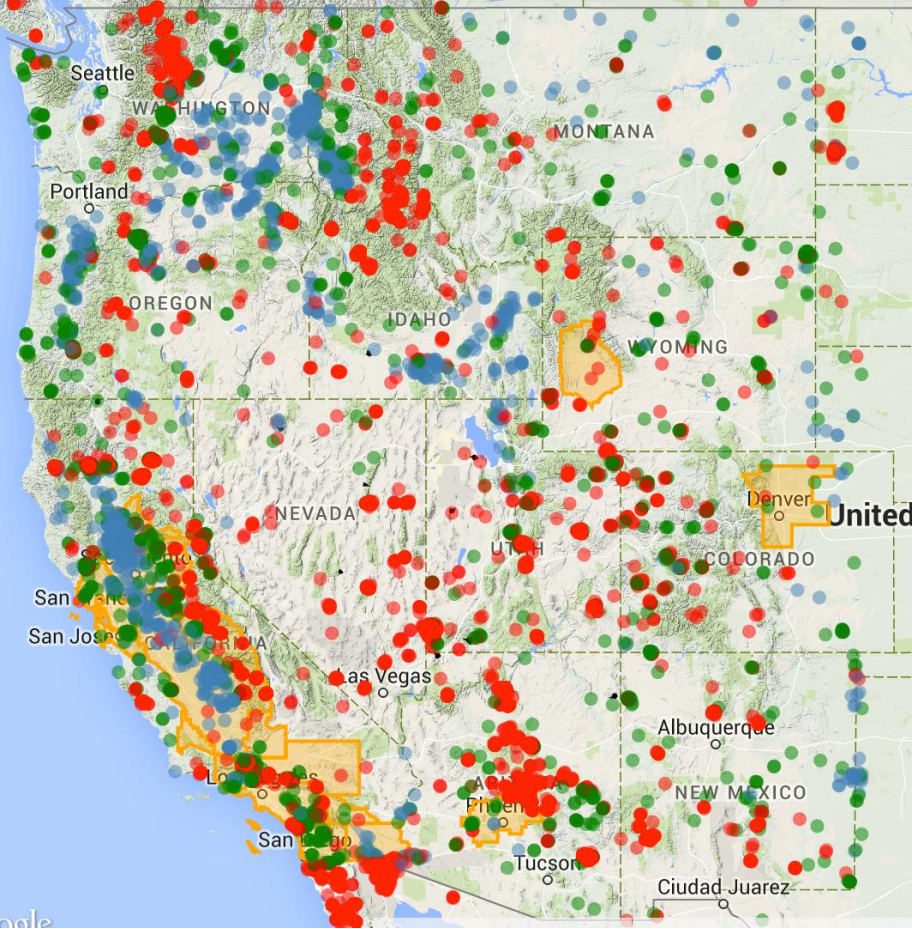


Max(79,51) = 3.15

### Wildfire

### Prescribed Fire

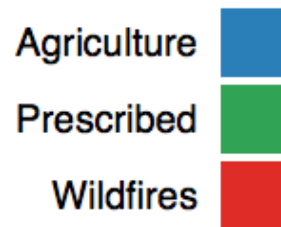
### Agricultural Fire



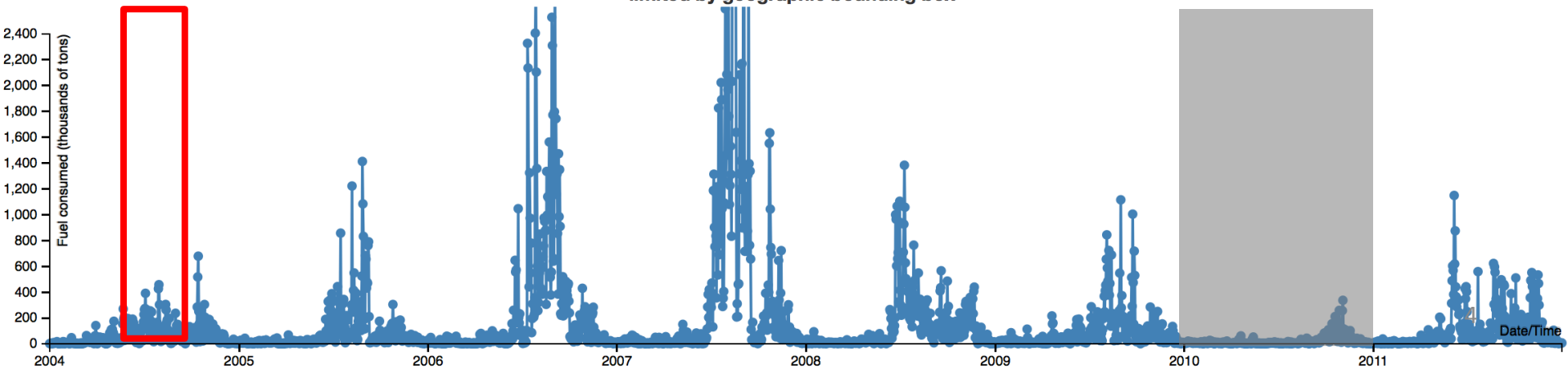
# 2004

6/21 – 9/21

Limited by bounding box



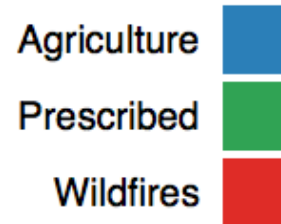
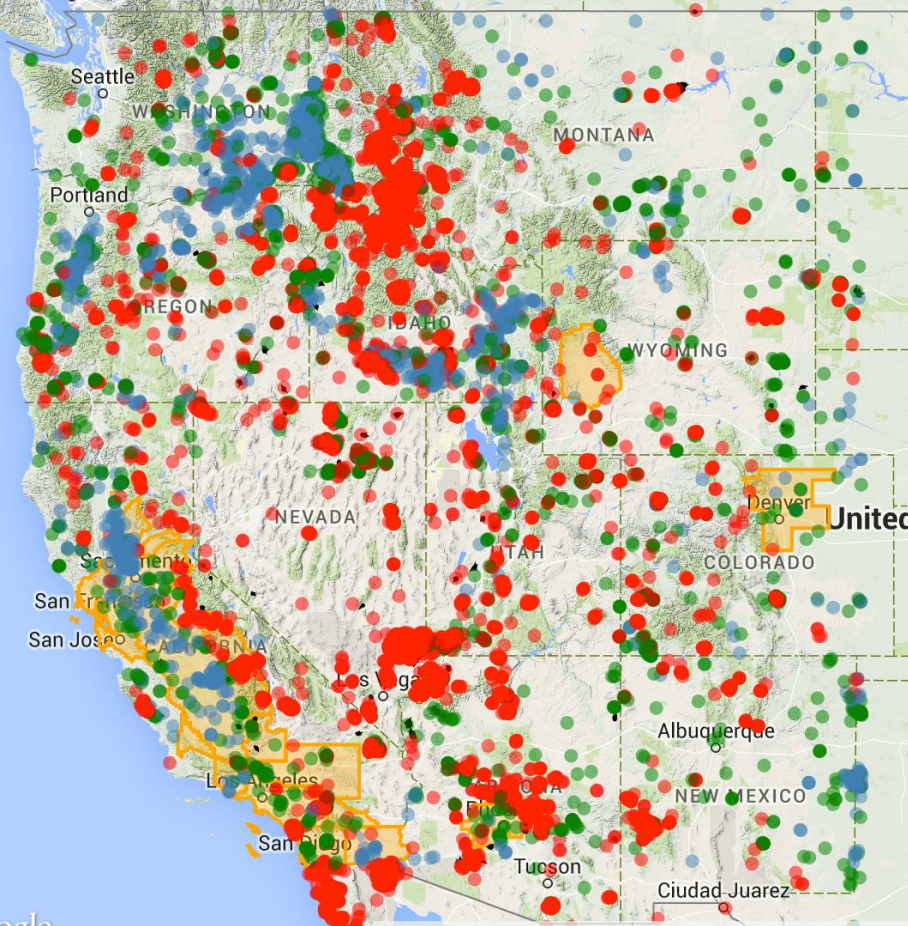
FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011  
limited by geographic bounding box



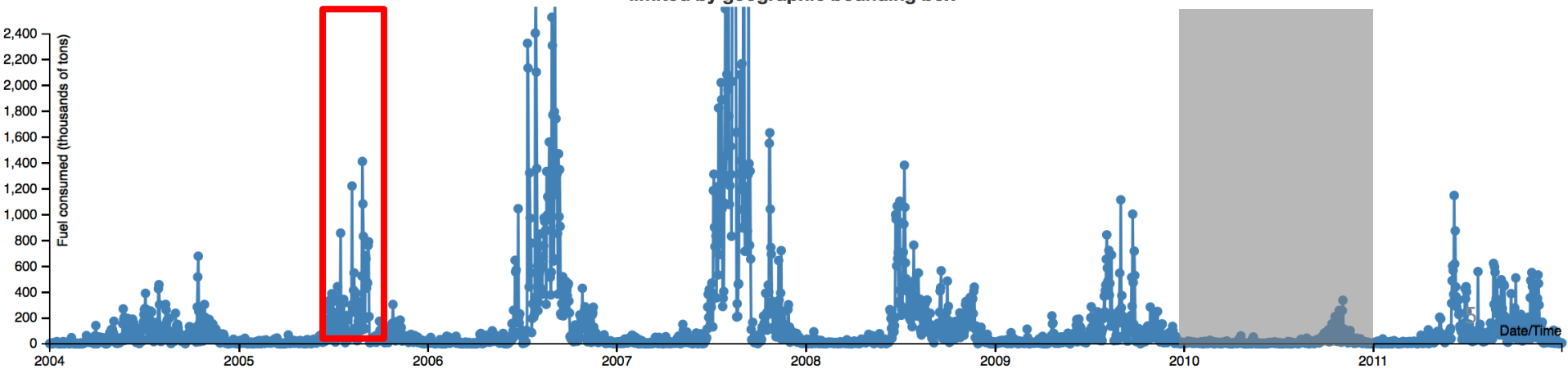
# 2005

6/21 – 9/21

Limited by bounding box



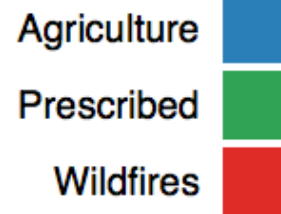
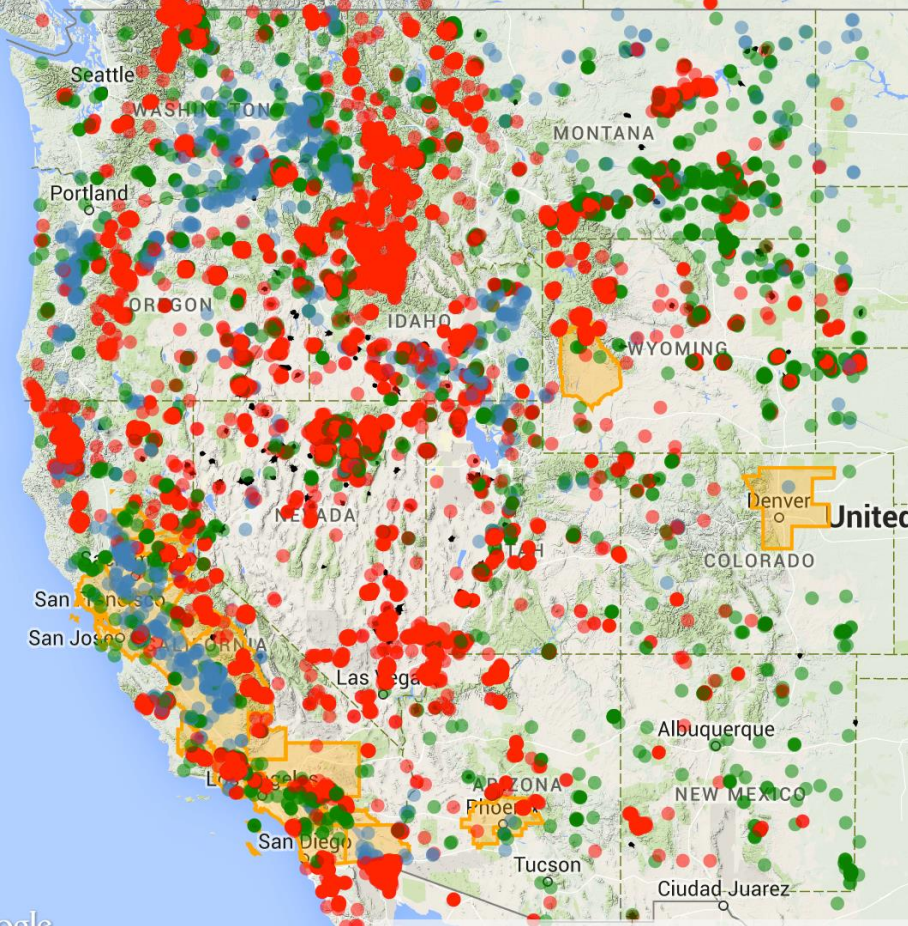
FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011  
limited by geographic bounding box



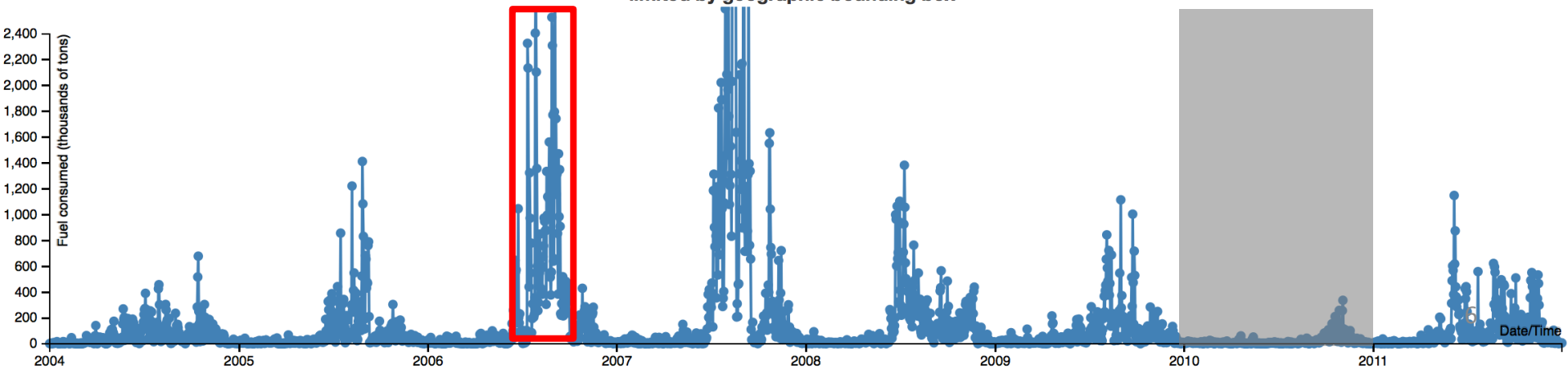
# 2006

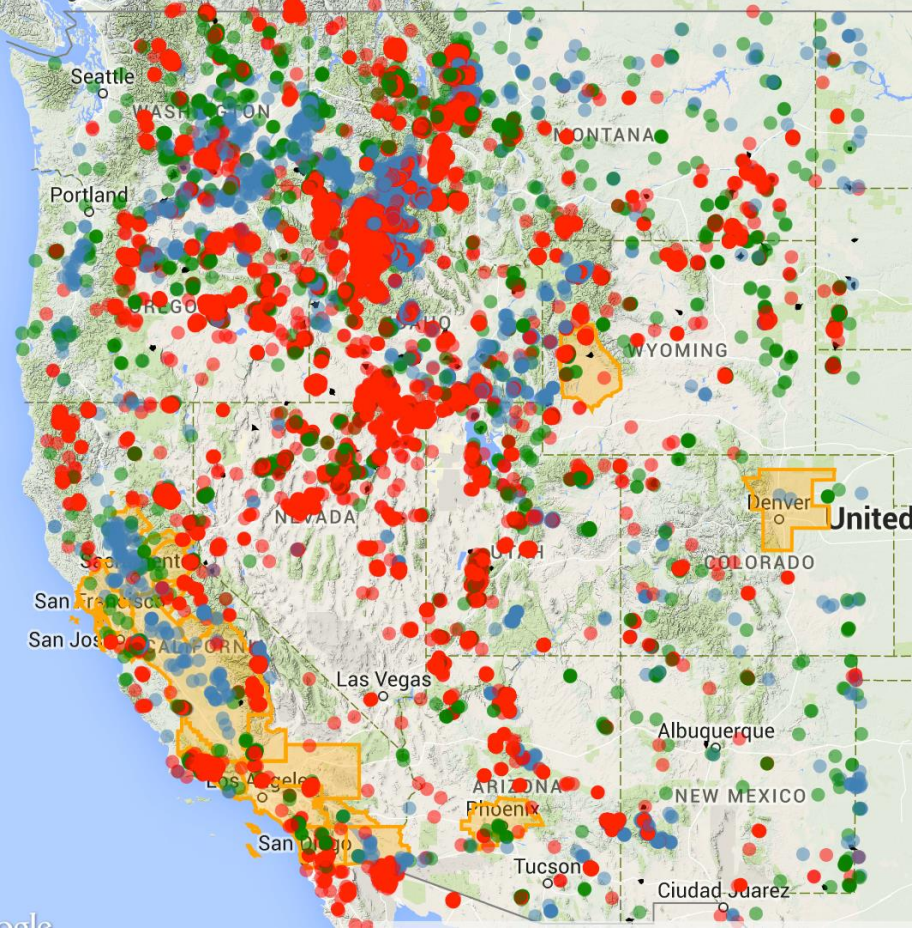
6/21 – 9/21

Limited by bounding box



FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011  
limited by geographic bounding box

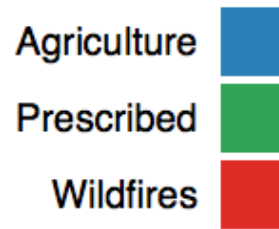




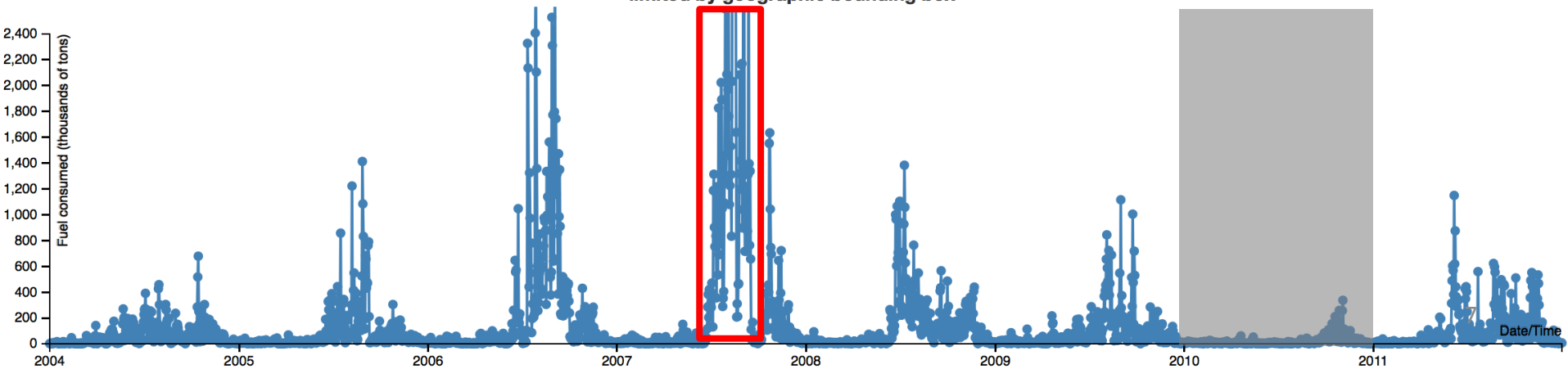
# 2007

6/21 – 9/21

Limited by bounding box



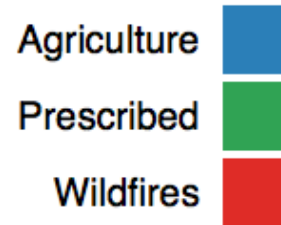
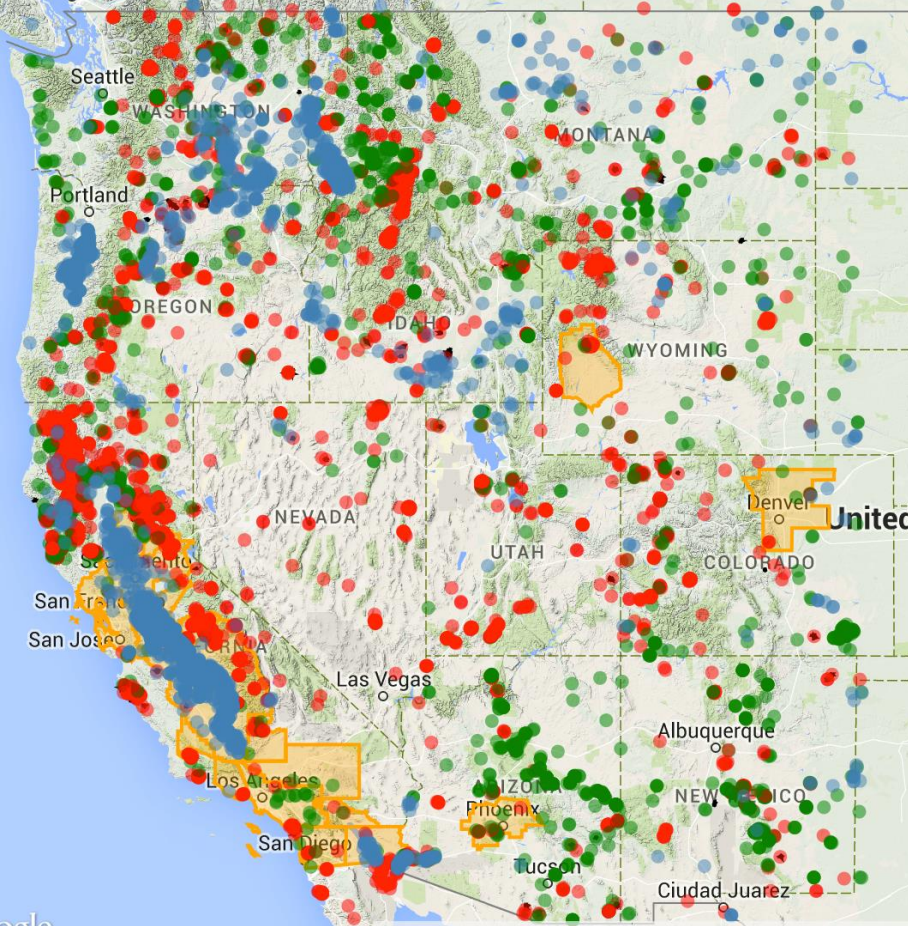
FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011  
limited by geographic bounding box



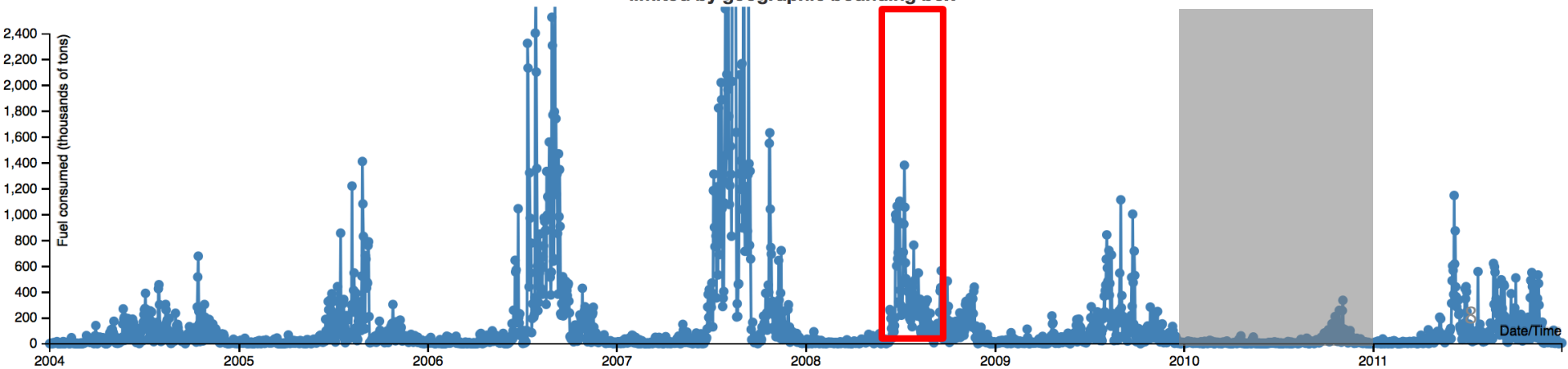
# 2008

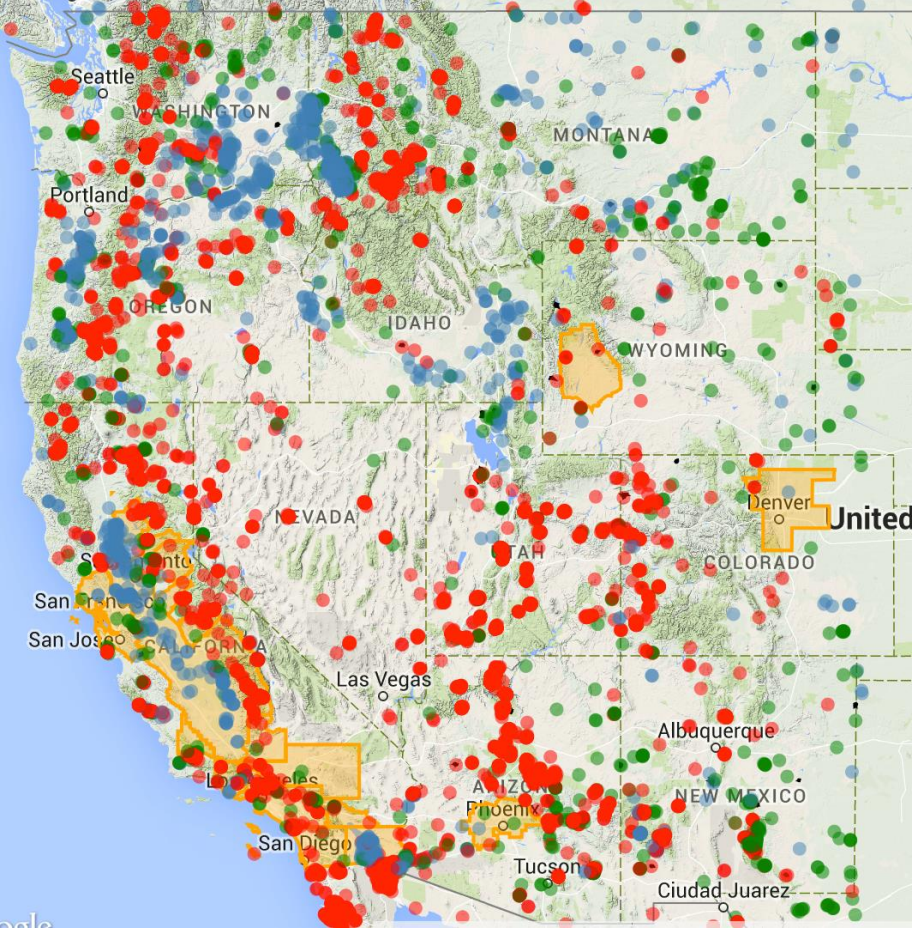
6/21 – 9/21

Limited by bounding box



FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011  
limited by geographic bounding box





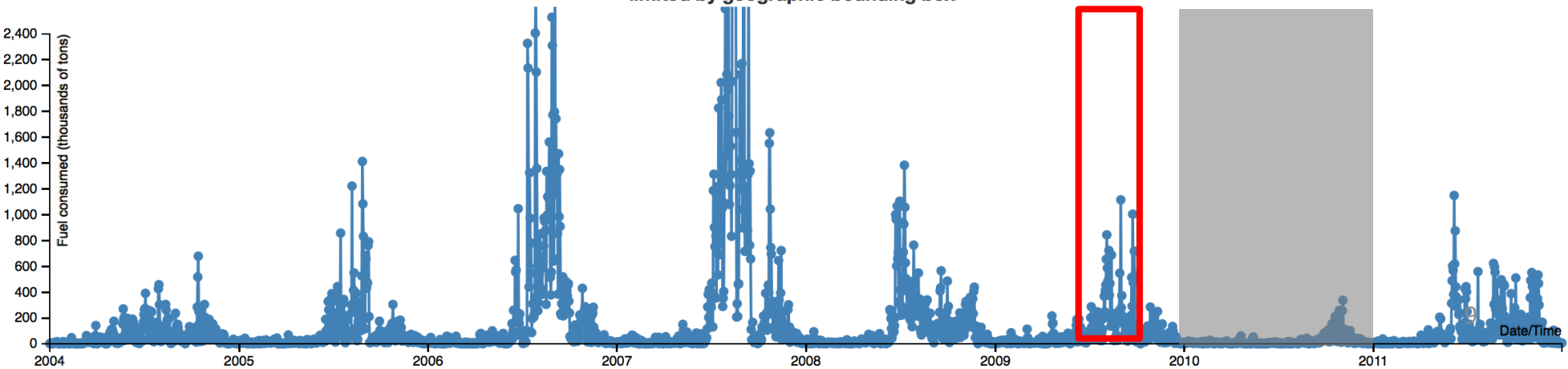
# 2009

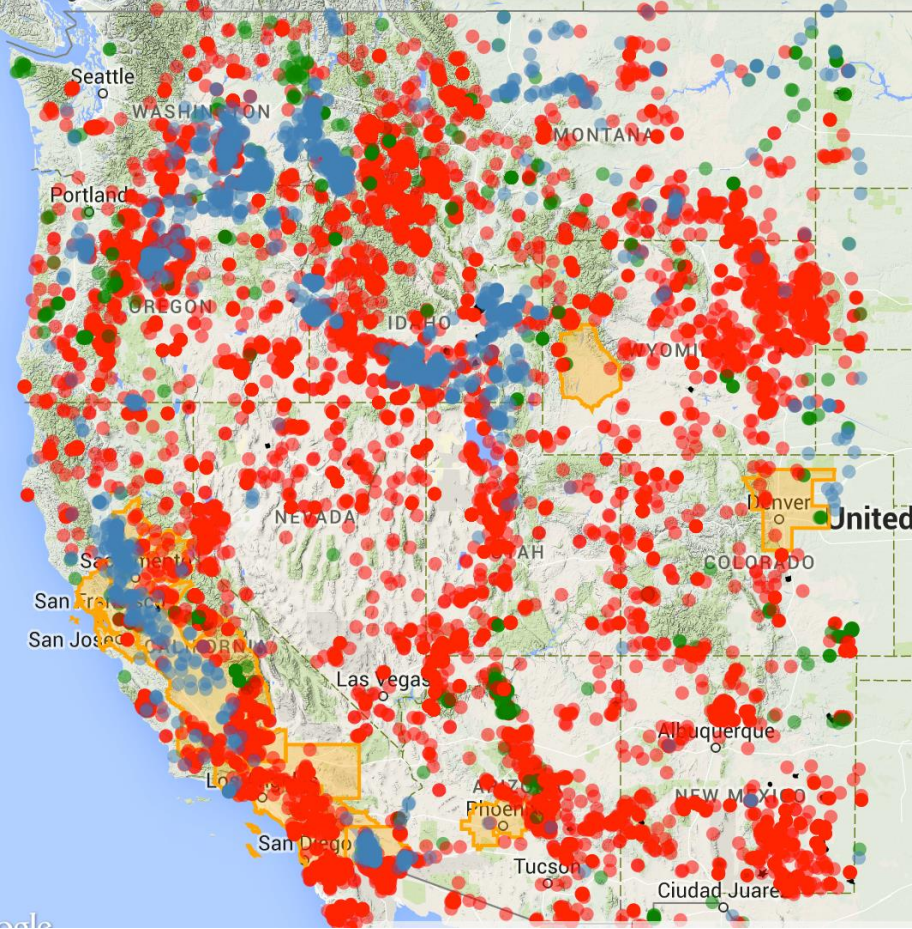
6/21 – 9/21

Limited by bounding box



FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011  
limited by geographic bounding box



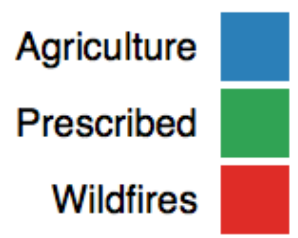


# 2011

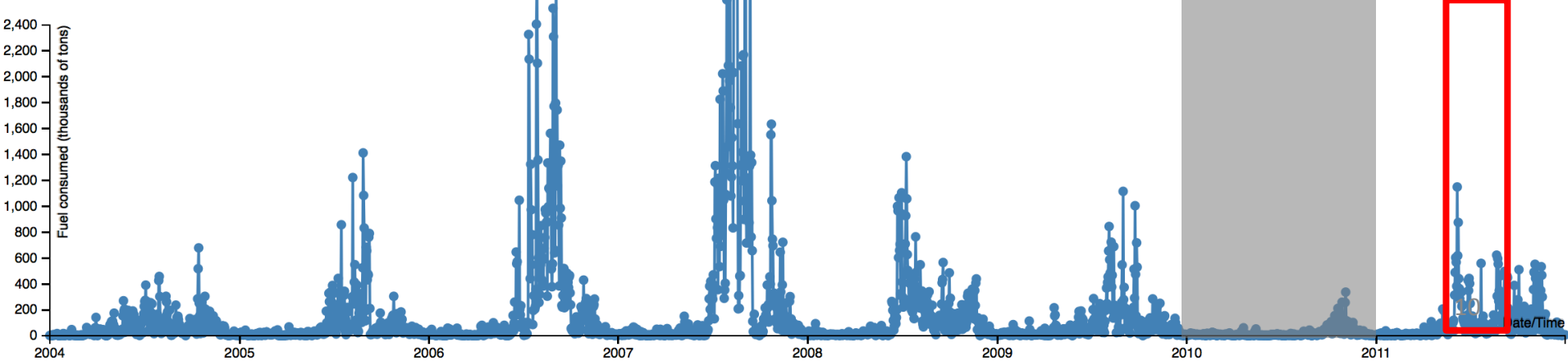
6/21 – 9/21

Limited by bounding box

\*Obtained additional small wildfire data for this inventory



FETS estimated fuel consumed for all fire types 01/01/2004 to 12/31/2011 limited by geographic bounding box



# WestJumpAQMS (<http://www.wrapair2.org/WestJumpAQMS.aspx>)

Fire Type

## Daily Maximum 8-Hour Ozone Threshold

76 (ppb)

70 (ppb)

65 (ppb)

60 (ppb)

Agricultural

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  76 ppb  
# of Days where Agricultural Burns Contrib.  $>$  Ozone Exceedance



Max(225,10) = 2

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  70 ppb  
# of Days where Agricultural Burns Contrib.  $>$  Ozone Exceedance



Max(200,22) = 2

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  65 ppb  
# of Days where Agricultural Burns Contrib.  $>$  Ozone Exceedance



Max(206,54) = 3

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  60 ppb  
# of Days where Agricultural Burns Contrib.  $>$  Ozone Exceedance



Max(194,85) = 5

Prescribed

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  76 ppb  
# of Days where Rx Burns Contrib.  $>$  Ozone Exceedance



Max(221,2) = 2

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  70 ppb  
# of Days where Rx Burns Contrib.  $>$  Ozone Exceedance



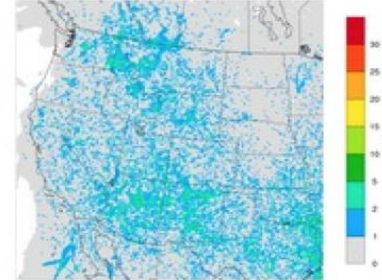
Max(217,20) = 3

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  65 ppb  
# of Days where Rx Burns Contrib.  $>$  Ozone Exceedance



Max(222,34) = 7

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  60 ppb  
# of Days where Rx Burns Contrib.  $>$  Ozone Exceedance



Max(219,40) = 8

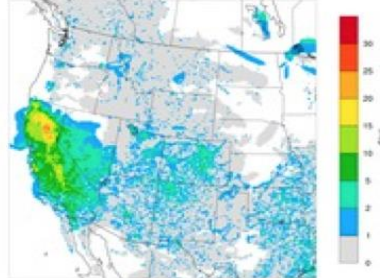
Wildfire

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  76 ppb  
# of Days where Wildfires Contrib.  $>$  Ozone Exceedance



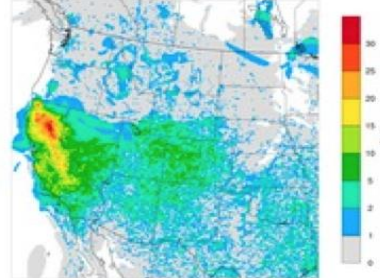
Max(29,124) = 19

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  70 ppb  
# of Days where Wildfires Contrib.  $>$  Ozone Exceedance



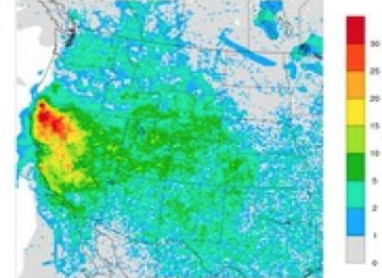
Max(30,124) = 28

Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  65 ppb  
# of Days where Wildfires Contrib.  $>$  Ozone Exceedance



Max(30,124) = 35

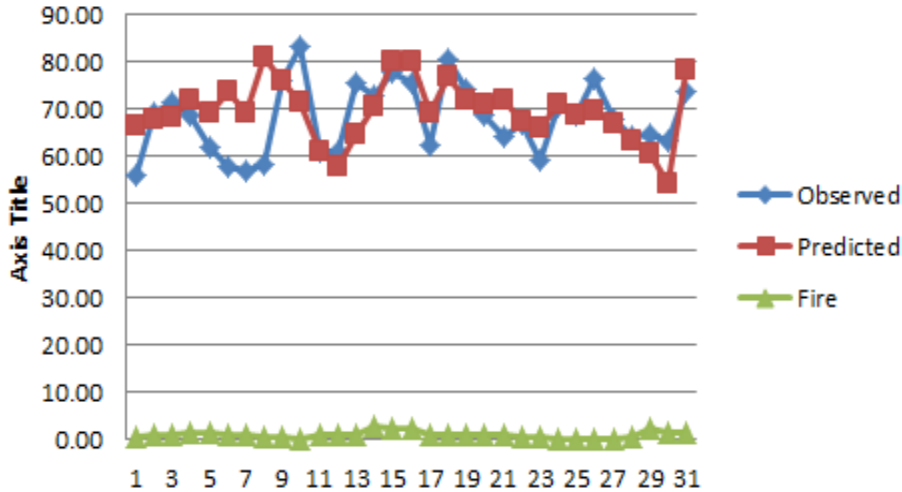
Contrib. to CAMx Daily Max 8-Hour Ozone  $\geq$  60 ppb  
# of Days where Wildfires Contrib.  $>$  Ozone Exceedance



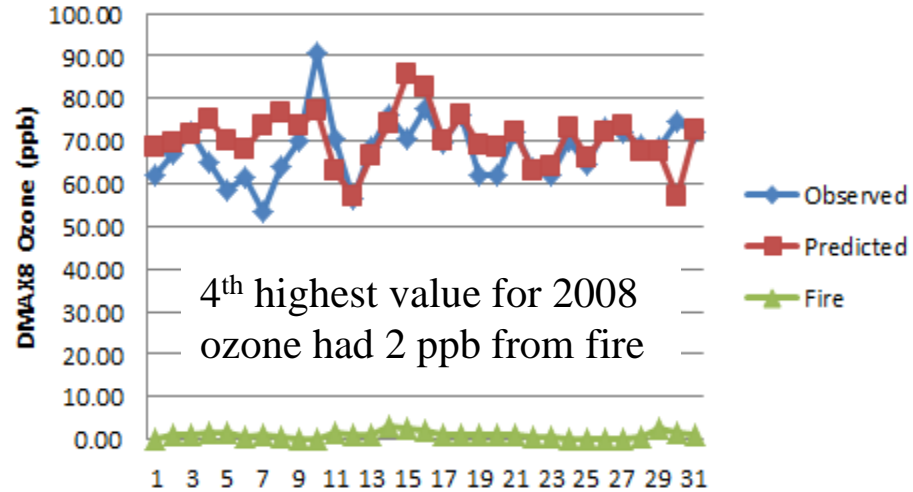
Max(29,128) = 37

# Denver Ozone Monitors July 2008

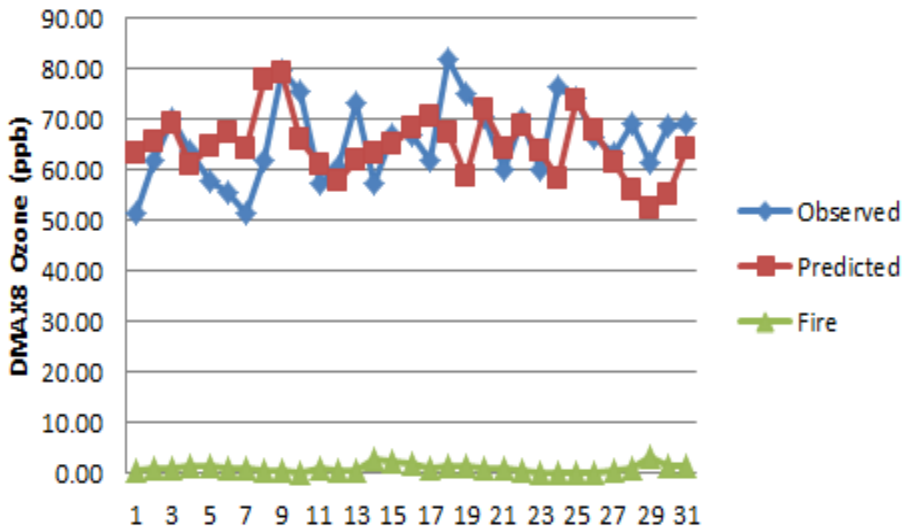
## Jul DMAX8 Ozone Rocky Flats No



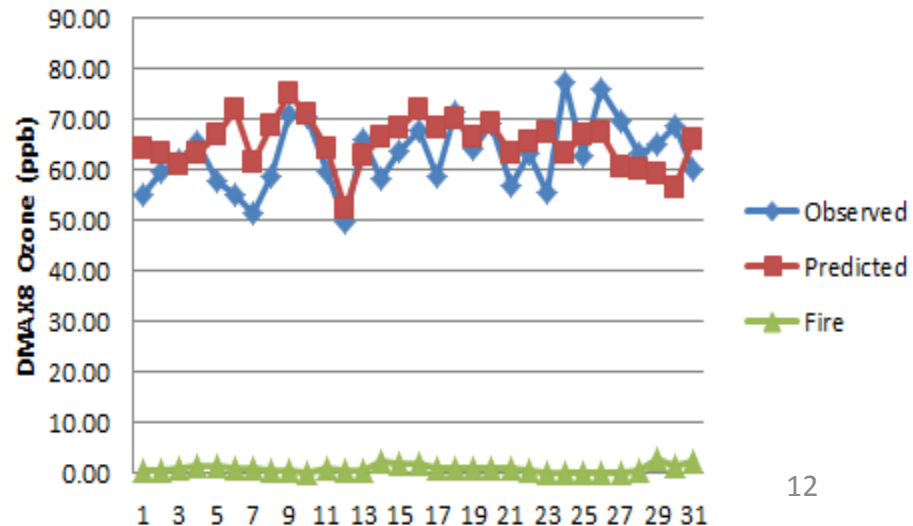
## Jul Base08c DMAX8 Ozone Chatfield



## Jul Base08c DMAX8 Fort Collins West



## Jul Base08c DMAX8 Greeley



# the afternoon

- Mark Flugge & Tom Wirth - [GHG EI: Emissions from Fires](#)
  - Brooke Hemming - [Research Perspectives](#)
  - Alison Eyth - [Fire Emissions Modeling Perspectives](#)
  - Di Tian - [State of GA](#)
  - Tina Suarez-Murias - [State of CA](#)
  - 45 mins. of discussion
  - Beth Palma - [Exceptional Events](#)
  - Reminder of day ~75 mins. of discussion and roundtable comments to close
- Which items will be addressed with short term process which longer term?
  - What are remaining issues for 2014 NEI?
  - How will we continue discussions, form a WG, etc.?