



Exceptional Events

Air Quality Management, Policy and Demonstration Tools

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New Exceptional Events Rule

The Basics

- Sets criteria and process for EPA to agree to exclude event-influenced data when determining NAAQS compliance and design values.
 - Section 319 of the Clean Air Act, as amended by the SAFE-TEA-LU Act of 2005 required EPA to promulgate a rule to govern the review and handling of exceptional events data.
- Final rule published March 22, 2007 (Effective date = May 21, 2007)
- Scope: General rule which applies to all NAAQS.
 - CFR language defining NAAQS for ozone, PM_{2.5}, and PM₁₀ explicitly provides for exclusion of event-influenced data.
 - Preamble states EPA intention to effectively apply same scheme for other NAAQS also, via 107(d)(3) discretion.
 - EPA will formally extend the rule to other pollutants as NAAQS are revised, in time for new mandatory designations.
- Replaces previous EPA policy/practices.

Definition of Exceptional Event

“The Criteria” for potential data exclusion [§ 50.14]

- Event affected air quality
- Event was either
 - Natural or
 - Caused by human activity and unlikely to recur at a particular location
- Event was not reasonably controllable or preventable
- Event was not:
 - Air mass stagnation
 - Inversion
 - High temperature
 - Lack of precipitation
 - Source noncompliance
- EPA Administrator has determined through the process established in the rule that it was an *exceptional* event.

The Process to Justify Data Exclusion

Section 50.14 of the EE Rule

- **Treatment of Air Quality Monitoring Data Influenced by Exceptional Events**
 - A State may request that EPA exclude data related to exceedances or violations of a NAAQS that are directly due to an exceptional event *from use in regulatory determinations*
 - By demonstrating to EPA's satisfaction that the event caused a specific air pollution concentration at a particular air quality monitoring location.
 - Demonstration to justify data exclusion
 - May include any reliable and accurate data
 - Must demonstrate a *clear causal relationship* between the *measured exceedance or violation* of the affected standard and the event.

The Process to Justify Data Exclusion

Section 50.14 of the EE Rule

- **Provisions for data influenced by emissions from *certain* fireworks**
 - Fireworks significantly integral to traditional national, ethnic, or other cultural events including, but not limited to July Fourth celebrations.



Notify the Public and EPA

1. Notify public of the occurrence (or anticipated occurrence) of the event
2. *Notify EPA by Flagging the data.*
 - Flag data in AQS and provide event description by July 1 of following year.
 - Also provide initial event description
 - Give public notice and opportunity to comment.
 - *Types of Flags*
 - *Request data exclusion*
 - *Informational only*

Old and New EE Qualifiers

Exceptional Events	
Code	Description
D	SANDBLASTING
F	STRUCTURAL FIRE
H	CHEMICAL SPILLS & INDUST. ACCIDENTS
I	UNUSUAL TRAFFIC CONGESTION
J	CONSTRUCTION/DEMOLITION
K	AGRICULTURAL TILLING
L	HIGHWAY CONSTRUCTION
M	REROUTING OF TRAFFIC
N	SANDING/SALTING OF STREETS
O	INFREQUENT LARGE GATHERINGS
P	ROOFING OPERATIONS
Q	PRESCRIBED BURNING
R	CLEAN UP AFTER A MAJOR DISASTER
Z	Other event

Natural Events	
A	HIGH WINDS
B	STRATOSPHERIC OZONE INTRUSION
C	VOLCANIC ERUPTIONS
E	FOREST FIRE
G	HIGH POLLEN COUNT
S	SEISMIC ACTIVITY
U	SAHARA DUST

Event Description	Inform- ational	Request Exclusions
	Code	Code
African Dust	IA	RA
Asian Dust	IB	RB
Chem. Spills :Industr. Accidents	IC	RC
Cleanup After a Major Disaster	ID	RD
Demolition	IE	RE
Fire - Canadian	IF	RF
Fire - Mexico/Central America	IG	RG
Fireworks	IH	RH
High Pollen Count	II	RI
High Winds	IJ	RJ
Infrequent Large Gatherings	IK	RK
Other	IL	RL
Prescribed Fire	IM	RM
Seismic Activity	IN	RN
Stratospheric Ozone Intrusion	IO	RO
Structural Fire	IP	RP
Terrorist Act	IQ	RQ
Unique Traffic Disruption	IR	RR
Volcanic Eruptions	IS	RS
Wildfire-U. S.	IT	RT
Wildland Fire Use Fire-U. S.	IU	RU

When May Air Quality Data be Excluded?

“The Required EE Evidence” [§ 50.14 (3)]

- **Demonstration to justify data exclusion shall provide evidence that:**
 - The event satisfies the *Statutory Definition of Exceptional Event*
 - There is a clear causal relationship between the measurement under consideration and the event that is claimed to have affected the air quality in the area
 - The event is associated with a measured concentration in excess of normal historical fluctuations, including background; and
 - There would have been no exceedance or violation “but for” the event.
- **Provided that all the Exceptional Event Rule requirements are met, EPA shall exclude such data from use in determinations of a NAAQS violation.**

Note: The rule has special provisions regarding fireworks and prescribed fires. The preamble discusses other situations of interest.

Submittal of The EE Demonstration

- Not later than the lesser of
 - 3 years following the end of the calendar quarter in which the event occurred
 - or 1 year before EPA plans to use the data for a regulatory decision.
- A State must submit the public comments it received along with its demonstration to EPA.
- In general, the type, amount, and detail level for presentation of evidence will vary by the circumstances for each event.

Types of Data to Consider for EE evidence

- Event characteristics: type, size, location, duration, estimated emissions, press accounts, response agency records, photos, videos, etc.
- Comparisons to the concentration history at that monitor.
- Comparisons to nearby monitors.
- Diurnal patterns of concentrations, if available.
- PM_{2.5} composition data, if available.
- Satellite data products and related models.
- Weather data.
 - Wind direction and speed.
 - Weather maps.
 - Trajectories (HYSPLIT or other).
- Wind roses and pollution roses.
- Statistical models relating air pollutant to weather.

New On-Line Tools

to assist with assembly of evidence

Products of Rudy Husar, Washington University

- Graphics and access to relevant EE data sets
 - Trajectories, satellite images, spatial and temporal air quality displays, etc.
- On-line tools are expected to remain operational as part of “DATAFED.NET” and ESIP

(Federation Of Earth Science Information Partners)



- In particular, see:
 - Evidence for Flagging Exceptional Events
 - [http://wiki.esipfed.org/index.php/Evidence for Flagging Exceptional Events](http://wiki.esipfed.org/index.php/Evidence_for_Flagging_Exceptional_Events)
 - [Analyst's Console](#).
 - EE Community Work Space
 - [http://wiki.esipfed.org/index.php/Exceptional Air Pollution Event Analysis Community Workspace](http://wiki.esipfed.org/index.php/Exceptional_Air_Pollution_Event_Analysis_Community_Workspace)

Catalog of Federated Datasets

Air Quality, Emissions, Meteorology

The screenshot displays the 'Compact Catalog - Alphabetical - Datafedwiki - Microsoft Internet Explorer provided by EPA - version 6'. The browser window shows the URL http://datafedwiki.wustl.edu/index.php/Compact_Catalog_-_Alphabetical. The page features a sidebar with navigation links and a main content area listing various datasets.

Navigation Links (Left Sidebar):

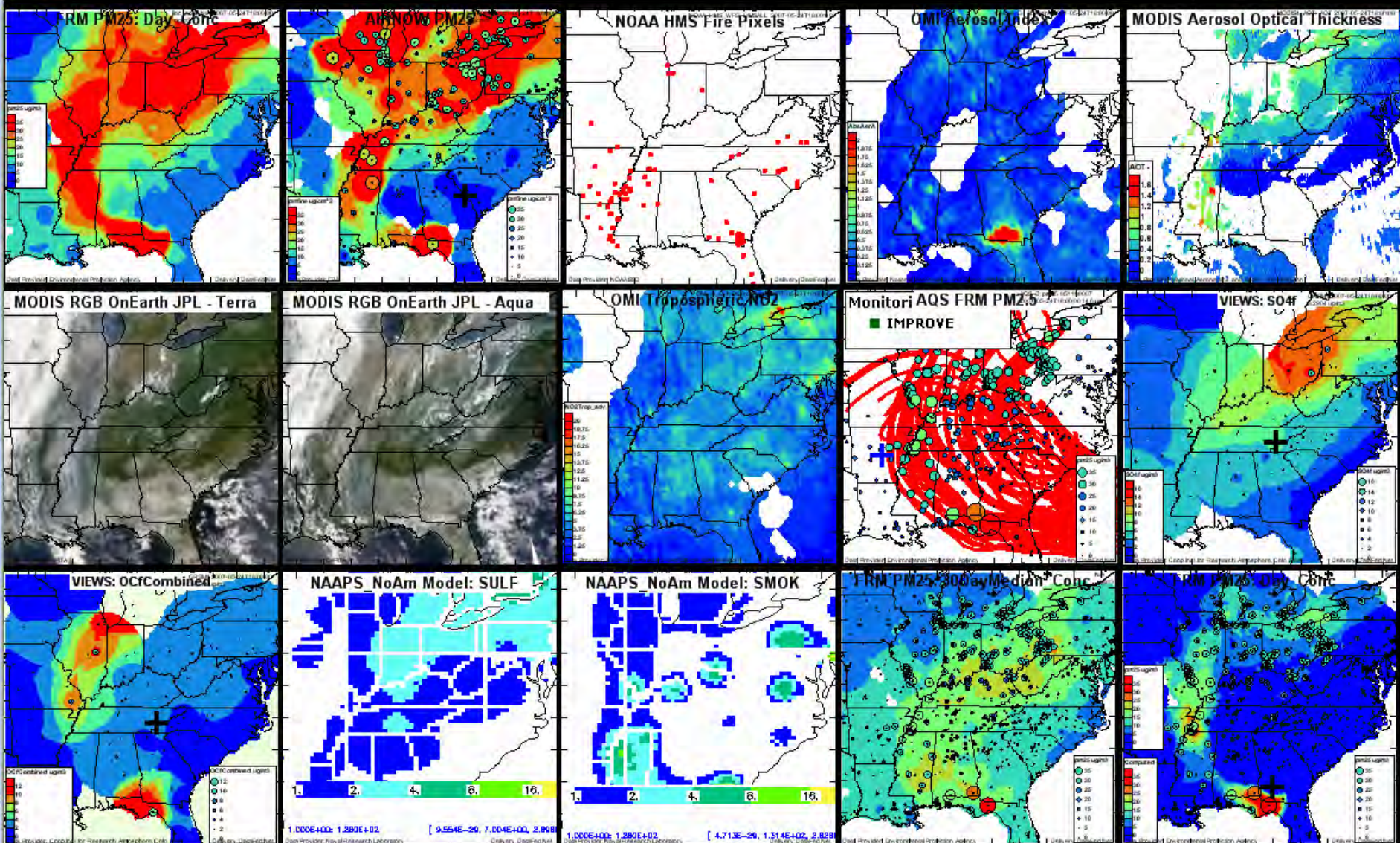
- DataFed Catalog
- Compact Catalog
- DevEvents
- Projects
- Presentations
- Pollution Events
- Web Applications
- Web2.0
- datafedwiki
- Tools and Methods
- Newest Pages
- Wiki Help
- search
- Go
- Search
- toolbox
- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link
- RSS Atom

Dataset List (Main Content Area):

Dataset Title	Domain	Data Type	Platform	Method	Provider
ABBI: ABBI	Emission	GRID	Emission	Model	ABBI
AERONETd: Global Ground-Based Sun Photometer Network	Aerosol	POINT	Network	Point	NASA
AIRNOW: Surface Monitoring Data for PM2.5 and Ozone	Aerosol	POINT	Network	FilterSmp	EPA
AIR AOTcube: AIR_AOTcube	Test	POINT	Satellite		CAPITA
AMAP: Dataset Title	Emission	GRID	Emission	Model	AMAP
AQS D: AQS_d	Aerosol	POINT	Network	Point	EPA
AQS H: AQS_h	Aerosol	POINT	Network	Point	EPA
AQS S: AQS STN	Aerosol	POINT			EPA
ASOS STI: ASOS Surface Extinction Coefficient by STI	Aerosol	POINT	Network	Point	STI
HTAP GEOSChem-v07: Dataset Title	Emission	POINT			[No_Source_URL EPA]
HTAP GEOSChem-v07: Dataset Title	Aerosol	GRID			HTAP
NAAPS EUROPE: NAAPS_EUROPE	Aerosol				NRL
NAAPS GLOBAL: NRL Global Aer	Aerosol	SeqImage			NRL
NAAPS NoAm: NRL Global Aerosol	Aerosol	SeqImage			NRL
NAAPS SEAsia: NAAPS_SEAsia	Aerosol				NRL
NAAPS SoAfr: NAAPS_SoAfr	Aerosol				NRL
NAAPS SoAm: NAAPS_SoAm	Aerosol				NRL
NEXRAD WMS: Dataset Title	Aerosol	SeqImage			NOAA
NGDC Emissions: Dataset Title	Emission	POINT			USDAFS
NOAA HMS WFS: Dataset Title					

070524 - THE ANALYST'S CONSOLE

GO |< >| 2007-05-24T18:00:00 Increment 1 Lat min: 28 max: 45 Lon min: -95 max: -75 width: 230 height: 230



Data Views Catalog:

[CATT_FRMPM25_Traj](#)

[FRMPM25_diff](#)

[FRMPM25_30DayMedian](#)

[FRMPM25_Day](#)

[AIRNOW_PM25](#)

[CATT_FRMPM25](#)

[VIEWS_SO4](#)

[VIEWS_OCfCombined](#)

[MODIS_Aqua_RGB_OnEarthJPL](#)

[MODIS_Terra_RGB_OnEarthJPL](#)

[MODIS_AOT](#)

[OMI_AI](#)

[OMI_NO2Trop](#)

[MOPITT_CO](#)

[NAAPS_NoAm_AOT](#)

[NAAPS_NoAm_Sulf](#)

[NAAPS_NoAm_Dust](#)

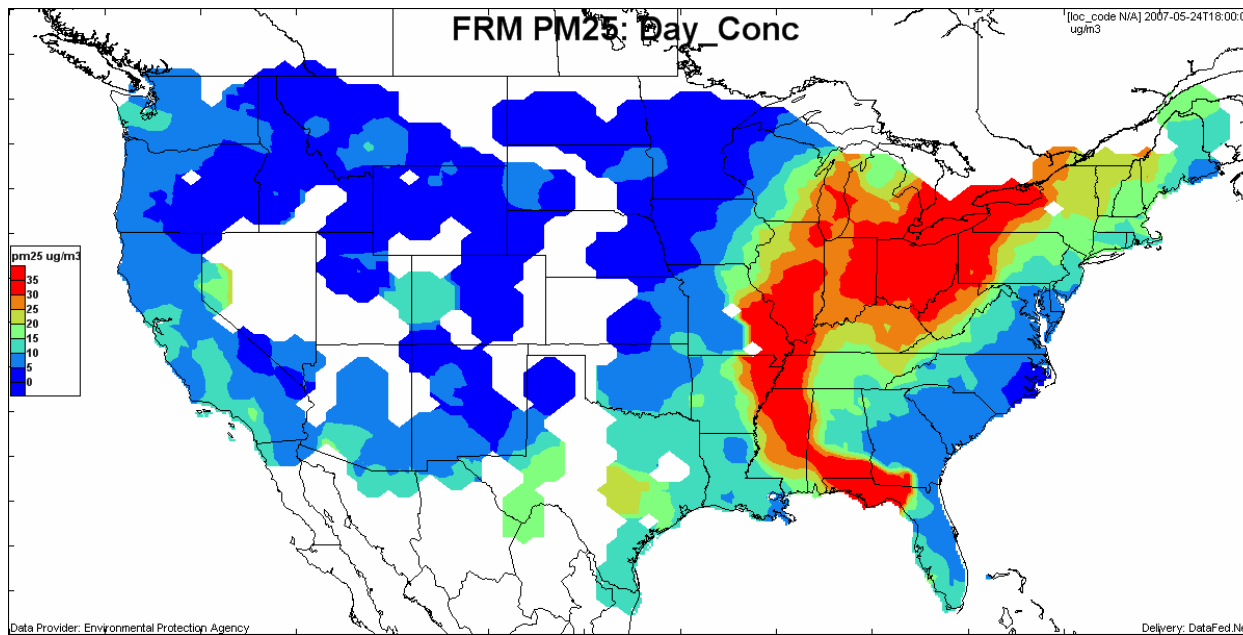
[NAAPS_NoAm_Smok](#)

[NOAA_HMS_FirePix](#)

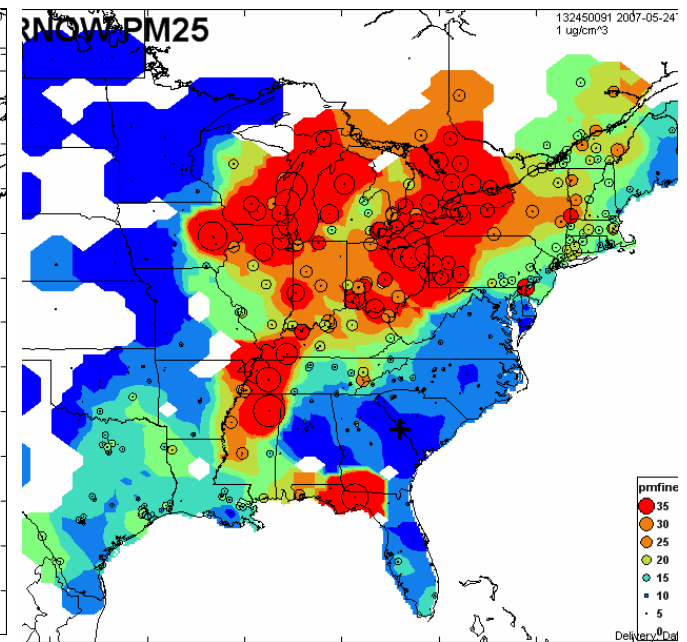
Analyst Console

http://www.datafed.net/consoles/user_consoles.asp?view_states=ARC/FRMPM25_Day_map,ARC/AIRNOW_PM25_map,ARC/NOAA_HMS_FirePix_map,ARC/OMI_AI_map,ARC/MODIS_AOT_map,ARC/MODIS_Terra_RGB_OnEarthJPL_map,ARC/MODIS_Aqua_RGB_OnEarthJPL_map,ARC/OMI_NO2Trop_map,ARC/CATT_FRMPM25_Traj_map,ARC/VIEWS_SO4_map,ARC/VIEWS_OCfCombined_map,ARC/NAAPS_NoAm_Sulf_map,ARC/NAAPS_NoAm_Smok_map,ARC/FRMPM25_30DayMedian_map,ARC/FRMPM25_diff_map&datetime=2007-05-24T18:00:00&Title=070524_GA_Smoke

FRM PM2.5

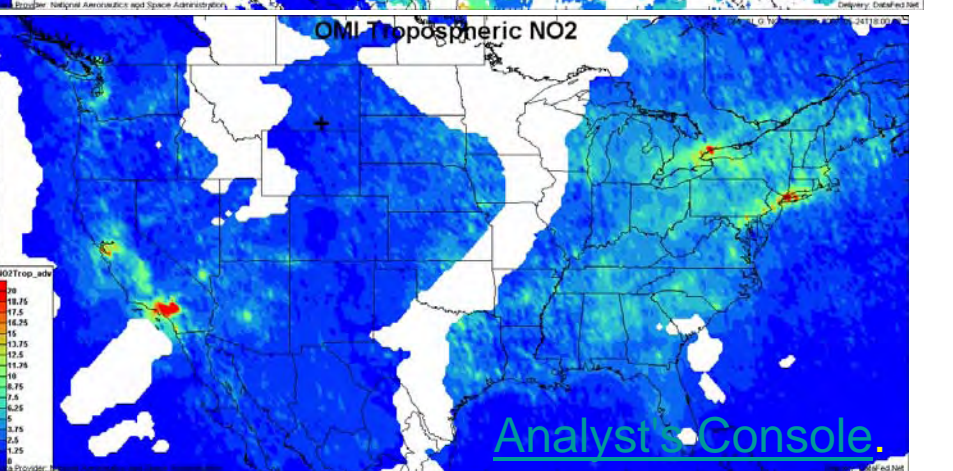
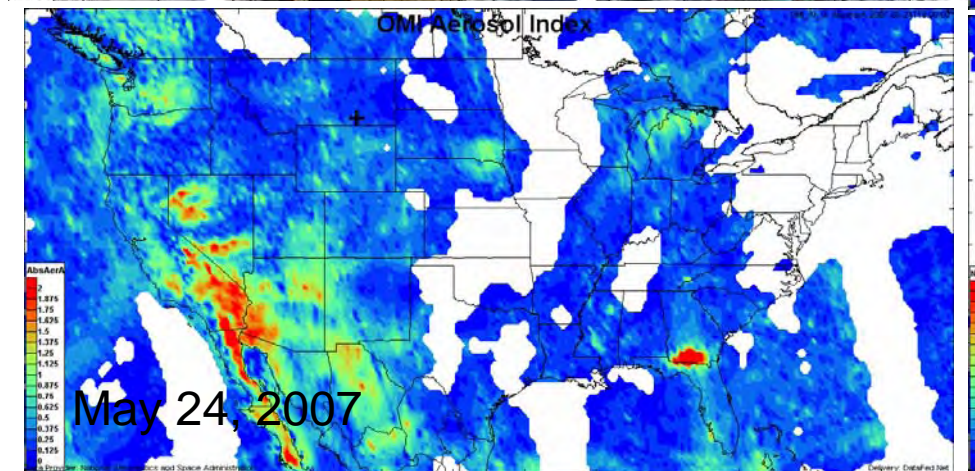
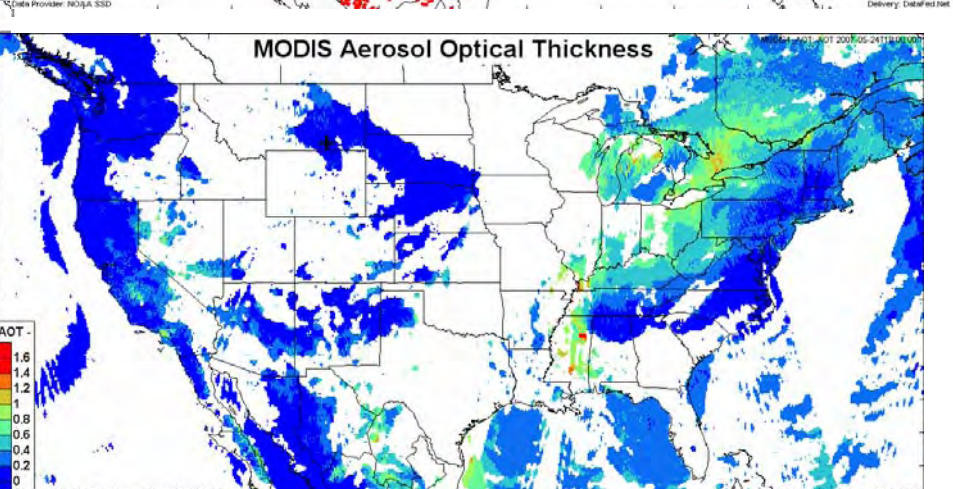
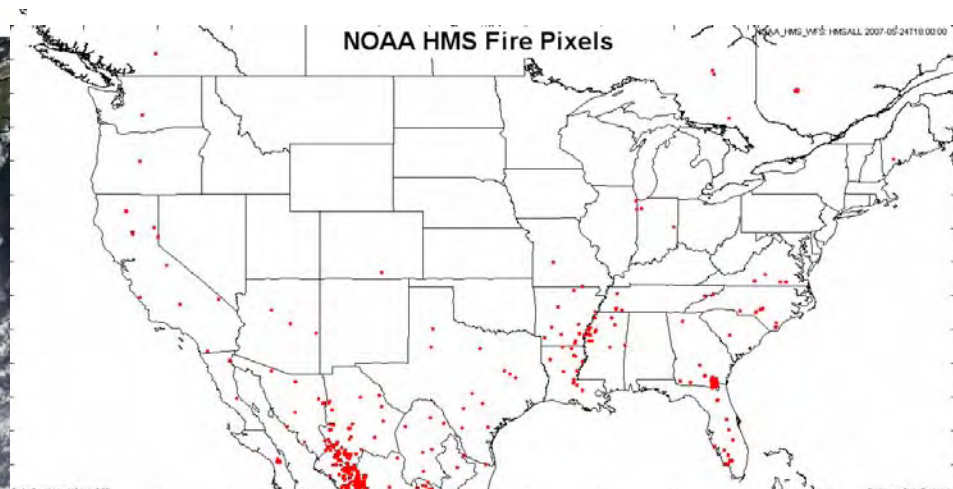
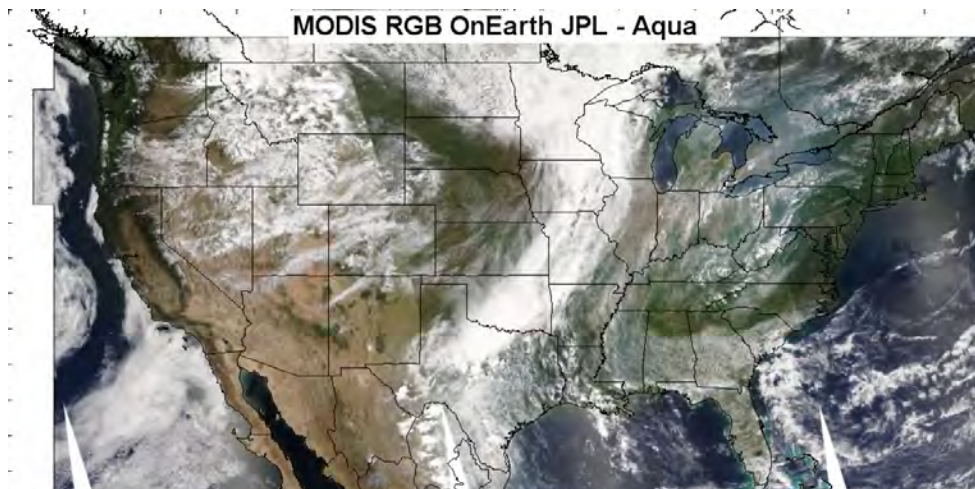


AirNow PM2.5



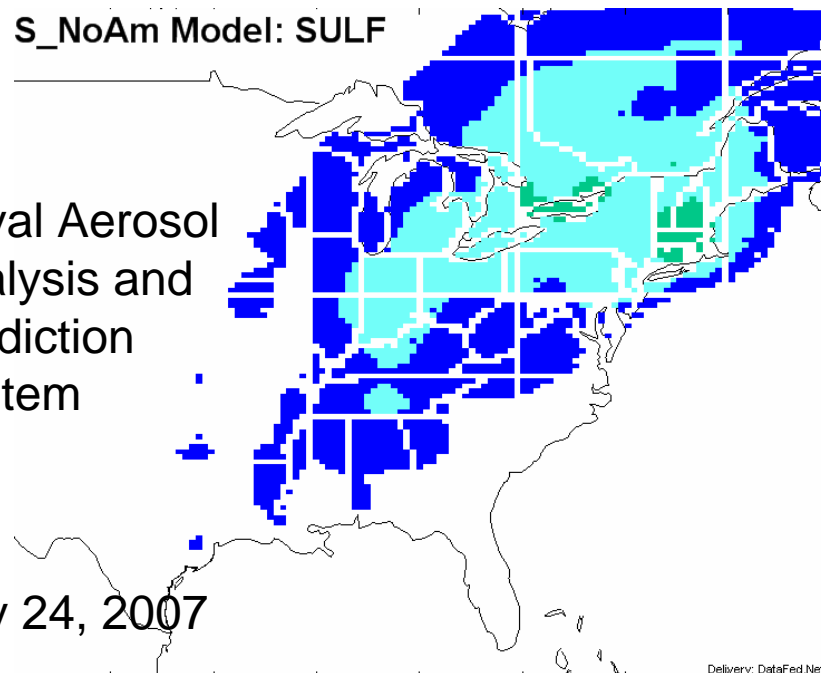
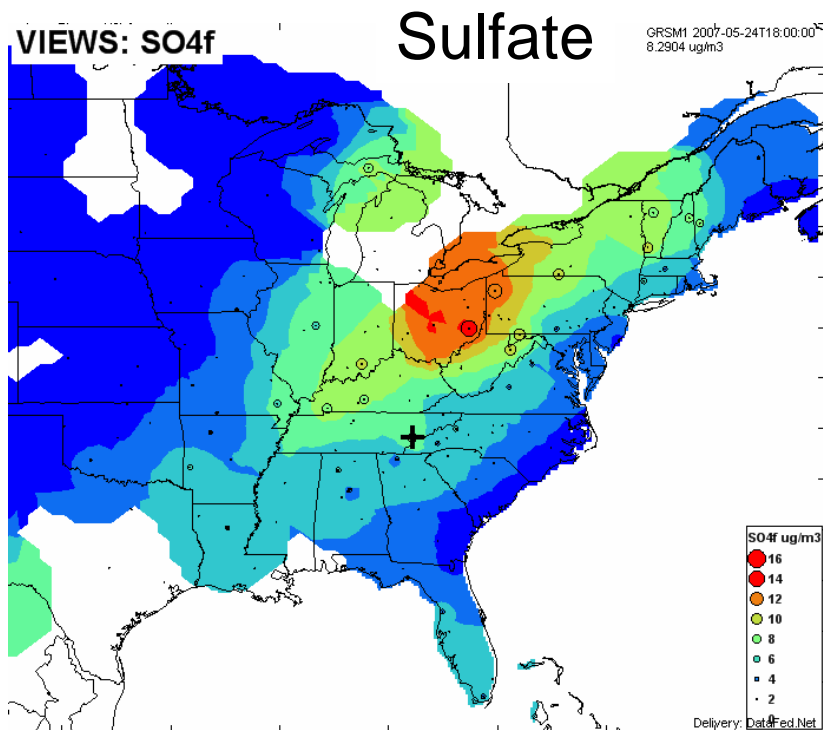
May 24, 2007

[Analyst's Console](#)



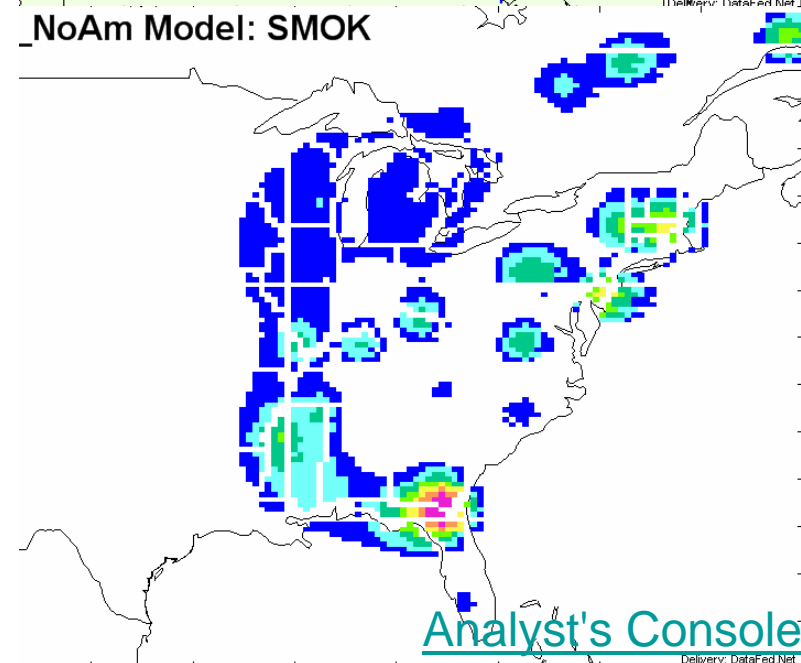
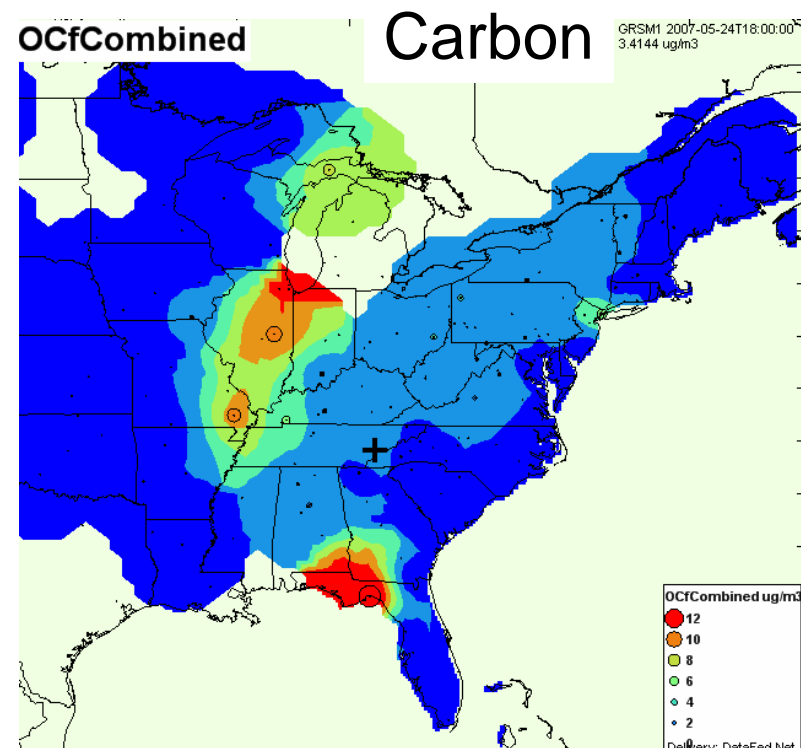
May 24, 2007

Analyst's Console



Naval Aerosol
Analysis and
Prediction
System

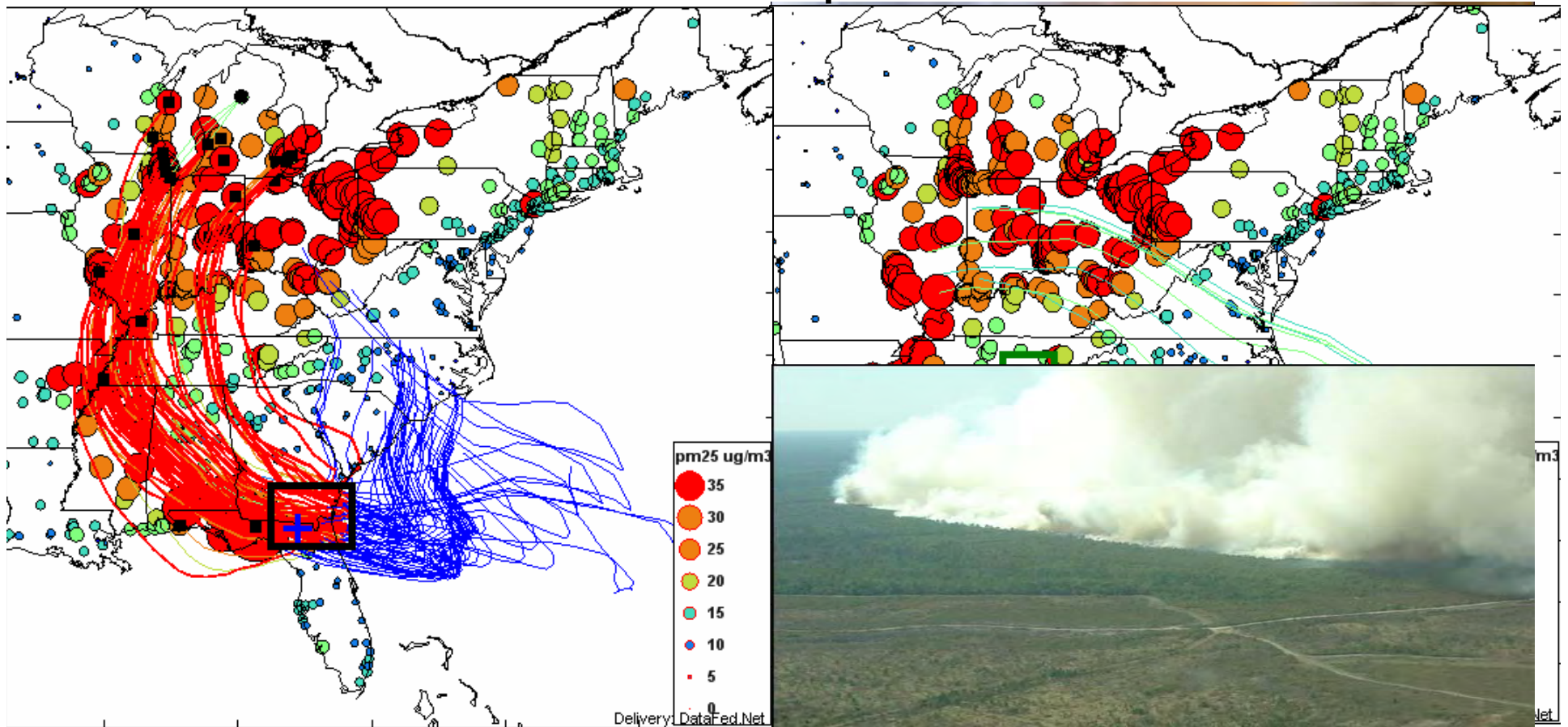
May 24, 2007



Analyst's Console

To Describe Causal Connection (Transport)

Source and Receptor Area Tools



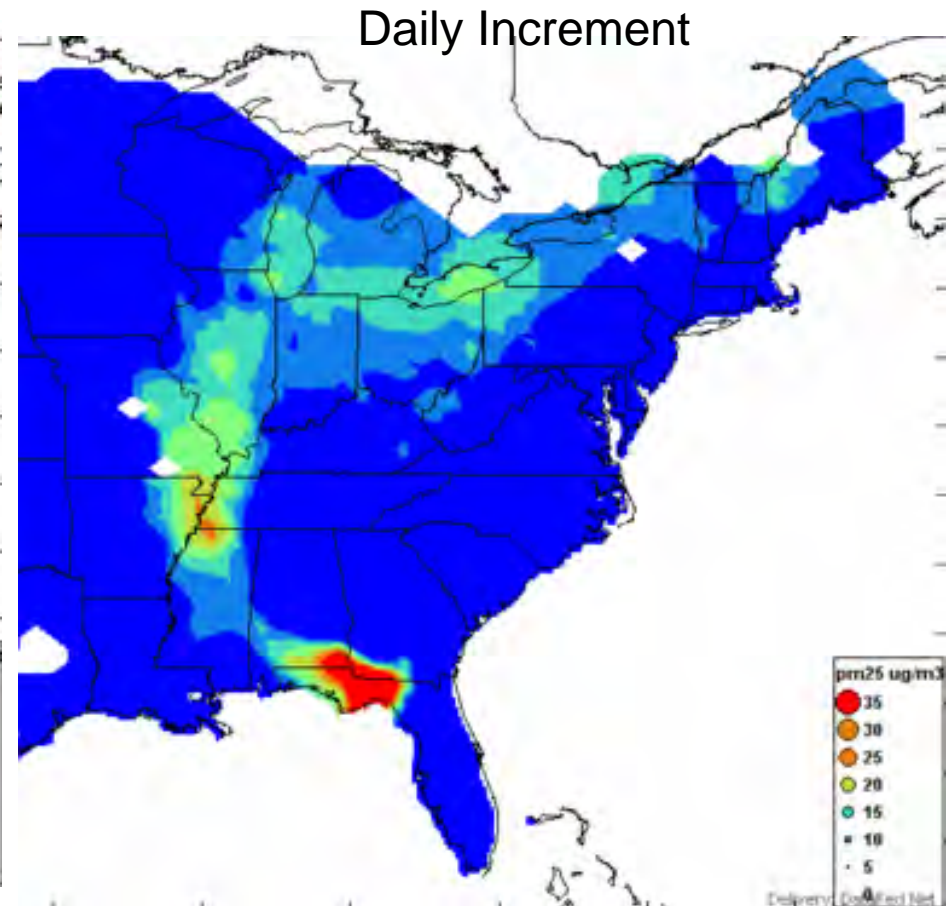
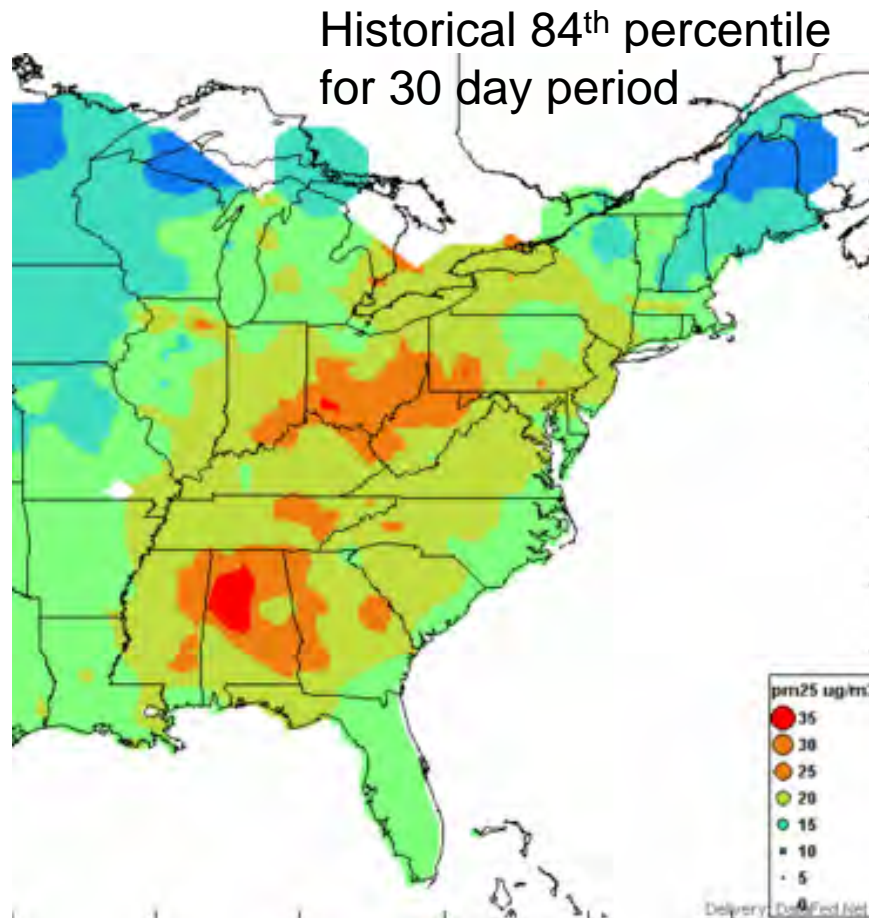
The user can move the rectangles

http://webapps.datafed.net/datafed.aspx?page=0705GAFire/CATT_AQS_D

http://webapps.datafed.net/datafed.aspx?page=0705GAFire/CATT_AQS_D_Rec

To Compare with Historical Data

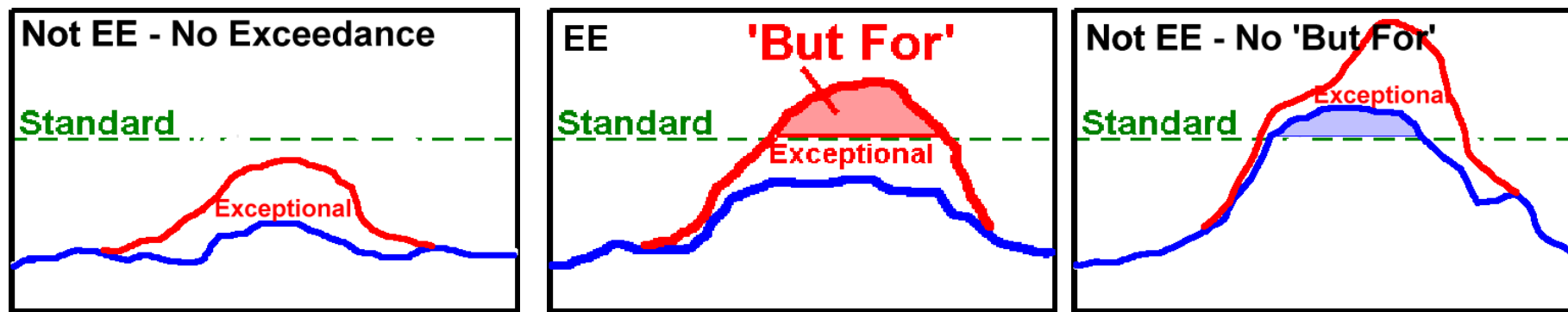
Concentration Anomaly Tool



http://wiki.esipfed.org/index.php/Help:Using_the_Concentration_Anomaly_Tool

The Analytical Challenge

“but-for” evaluation



- Only the red line is observable!
- The blue line has to be inferred from other data:
 - Speciation
 - Continuous measurements
 - Models?

 **Bookmark**

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State Recommendations and EPA Responses

EPA plans to designate geographic areas as attaining or not attaining the 2006 24-hour PM_{2.5} standards by December 18, 2008. EPA has requested that states and tribes submit recommendations to EPA for PM_{2.5} attainment and nonattainment areas by December 18, 2007.

The following map groups the states submitted to EPA by the states or tr

2006 24-Hour PM_{2.5} Standards — Region 4 Recommendations and EPA Responses

EPA plans to designate geographic areas as attaining or not attaining the 2006 24-hour PM_{2.5} standards by December 18, 2008. EPA has requested that states and tribes submit recommendations to EPA for PM_{2.5} attainment and nonattainment areas by December 18, 2007.

State recommendations are presented below.

Tribal information is available on the [Tribal Recommendations](#) page.

EPA Intended Designations (Not Final)

EPA will make official designations by the end of 2001.

Recommendations received by EPA Region 4

State	State Recommendation	EPA Response
Alabama	Letter (PDF) (91 pp, 4.1MB) Addendum (PDF) (4 pp, 140KB)	Letter (PDF) (98 pp, 4.7MB)
Florida	Letter (
Georgia	Letter (Letter (
Kentucky	Letter (Addend	
Mississippi	Letter (
North Carolina	Letter (
South Carolina	Letter (
Tennessee	Letter (Letter (

Have Fun!
Be Safe!
Don't Create any Exceptional Events!

