

AIRNow Issues and Products

By:

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Presented at:

U.S. EPA 2004 National Air Quality Conference:

Your Forecast to Breathe By

February 22-25, 2004

Baltimore, MD

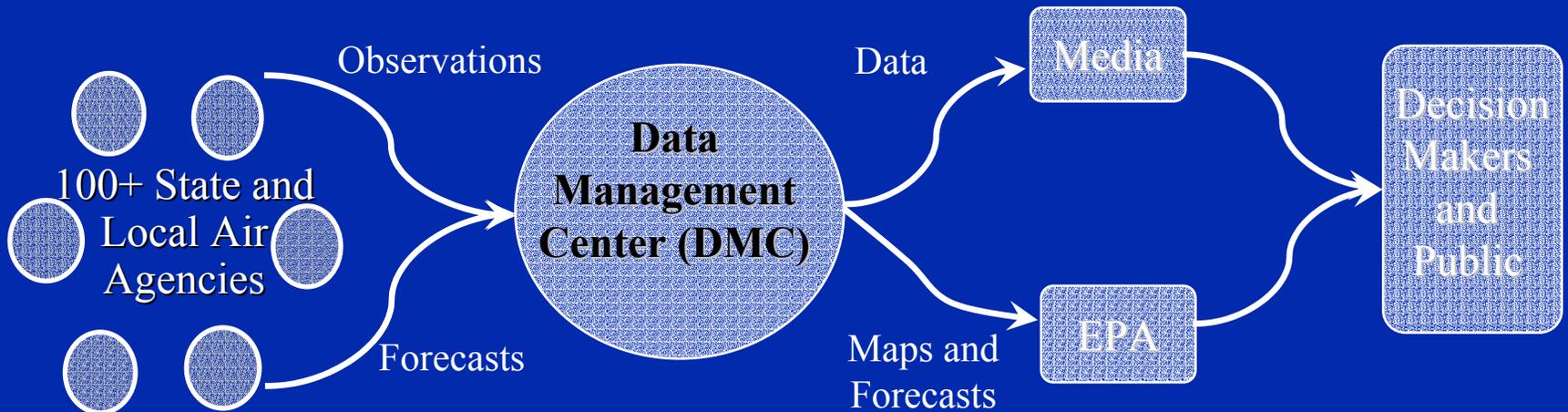


Overview

- Operational issues
 - Timeliness of data transfer to DMC
 - Data quality
 - Product turn-around time and dissemination
 - Forecast reliability and accuracy
- Products available through AIRNow
- Resources for AIRNow Stakeholders
- Conclusion

Operational Issues

AIRNow Data Flow



Operational Issues – Data Transfer (1 of 2)

- Current delivery cutoff is 30 minutes past the hour
- Automated e-mails are sent if file is not received or cannot be processed
- Files are processed within 90 seconds from delivery time
- Real-time status is posted on AIRNow-Tech home page
- PM_{2.5} data precision will be increased to 1 decimal place in 2004

DMC Operational Status
February 18, 2004 18:41 (ET)

Color Legend
Green = Current
Yellow = 2 to 6 hrs old
Red = over 6 hrs old
Grey = Unknown status

News and Events
"Your Forecast to Breathe By"
The 2004 National Air Quality conference will be held in Baltimore, Maryland, from February 22-25, 2004, at the Marriott Baltimore Inner Harbor Hotel. You can register for the conference by going to the Air Quality/AIRNow web page at <http://www.epa.gov/airnow/>, scroll down to the bottom, click on "Your Forecast to Breathe By, EPA's 2004 National Air Quality Conference," which will take you to the conference registration page.
Posted February 18, 2004, 18:33 (ET)

Polling Summary
(All times are in ET)

Agency	Ozone	PM2.5	PM10
AB1	02/18 16:00		
AL1			
AL2	02/18 17:00	02/18 17:00	02/18 17:00
AL3	02/18 17:00		
AR1	02/18 17:00	02/18 17:00	
AZ2			
AZ3	02/18 17:00	02/18 17:00	02/18 17:00
BC1	02/18 17:00	02/18 18:00	02/18 18:00
BC2	02/18 17:00	02/18 17:00	
CA1	02/18 17:00	02/18 17:00	
CA2	02/18 17:00	02/18 17:00	
CA3	02/18 17:00	02/18 17:00	02/18 17:00
CA4	02/18 17:00	02/18 17:00	
CA5	02/18 17:00	02/18 17:00	
CA6	02/18 17:00	02/18 17:00	02/18 17:00
CA7	02/18 17:00		
CA8	02/18 17:00	02/18 17:00	
CA9	02/18 17:00		
CK1		02/18 17:00	02/18 17:00
CN1	02/18 17:00	02/18 17:00	
CN2	02/18 17:00		
CO1	02/18 17:00	02/18 17:00	
CT1		02/18 17:00	02/18 17:00
DC1	02/18 17:00	02/18 17:00	
DC2			
DE1		02/18 17:00	
FL1	02/18 17:00	02/18 17:00	
FL2	02/18 17:00	02/18 17:00	
FL3	02/18 17:00	02/18 17:00	
FL4	02/18 17:00	02/18 17:00	
GA1	02/18 17:00	02/18 17:00	02/18 17:00

AIRNow-Tech Web site: www.airnowtech.org

Operational Issues – Data Transfer (2 of 2)

- 2004 delivery cutoff goal—20 minutes
- Current delivery times
 - 74 agencies—20 minutes or less
 - 4 agencies—21 to 24 minutes
 - 8 agencies—25 minutes or more
- Media would like data 24 hours a day; about 75% of agencies are meeting this request
- Data Telemetry software being redesigned to send XML files; possible replacement for OBS
- Agencies can view polling information on AIRNow-Tech “Polling Summary” page

AIRNow Year in Review 2003-04 Performance Analysis

Providing AIRNow products to the media and public helps verify your agency's data and data base. The Data Storage Management (DSM) relies on three performance measures critical to generating AIRNow products:

1. Did your agency deliver hourly data to the DSM?
2. How long does it take to deliver data?
3. What if the data is not available?

The performance measures were computed for each agency participating in the AIRNow program from May 1 to September 30, 2003 for ozone and from October 1, 2003 to January 31, 2004 for PM10. Ranks are based on all three performance measures as well as number of sites. Ranks for ozone range from 1 to 12 and from 1 to 72 for PM10.

If you have questions about the analysis, please see or contact user: Charis or Craig Anderson at: [Source Technology, Inc. \(charis@csrc.com; craig@source-tech.com; 707-452-8000\)](mailto:Source Technology, Inc. (charis@csrc.com; craig@source-tech.com; 707-452-8000).

If you need help to improve your polling performance, please contact user: Mike at U.S. EPA's Office of Air Quality Data at: 419-531-3300.

Performance Measures for Each Agency											
Agency	1. Percent of Data Available	2. Average Collection Time	3. Percent of Data Available	4. Average Collection Time	Agency	1. Percent of Data Available	2. Average Collection Time	3. Percent of Data Available	4. Average Collection Time	Agency	1. Percent of Data Available
001	100	10	100	10	001	100	10	100	10	001	100
002	100	10	100	10	002	100	10	100	10	002	100
003	100	10	100	10	003	100	10	100	10	003	100
004	100	10	100	10	004	100	10	100	10	004	100
005	100	10	100	10	005	100	10	100	10	005	100
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099	100	10	100	10	099	100	10	100	10	099	100
100	100	10	100	10	100	100	10	100	10	100	100

See full-size poster outside for more details

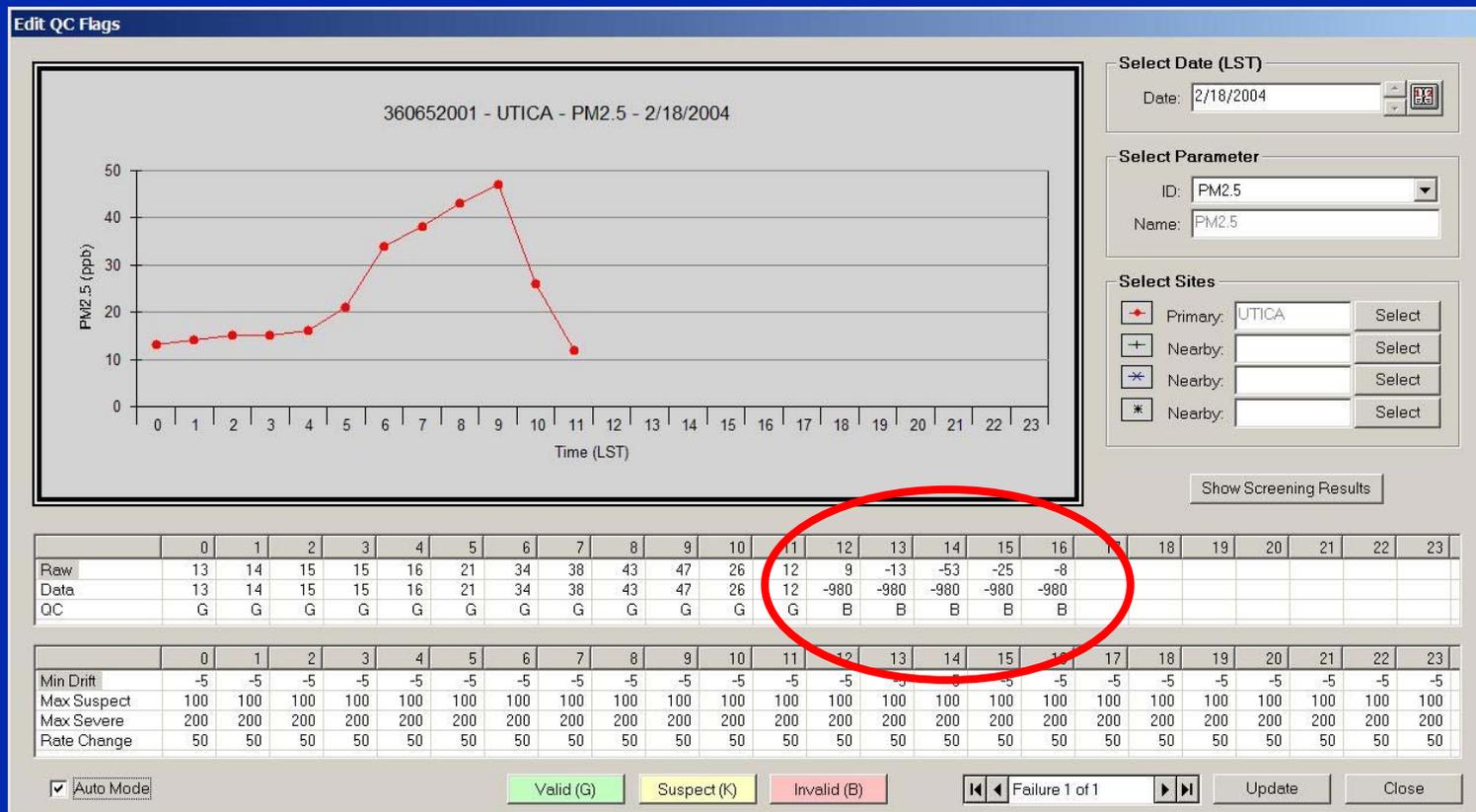


Operational Issues – Data Quality (1 of 5)

- DMC mapping system has many built-in quality control (QC) methods (see AIRNow-Tech Resources page for details)
- Ozone data quality is good
- PM_{2.5} data quality could be improved
- New continuous PM_{2.5} monitoring techniques will help
- Erroneous values can be quickly translated to public products unless QC criteria are more accurately configured
- How you can improve your data quality
 - Ensure that calibration values are flagged as “Bad” before delivery to the DMC
 - Review and update QC criteria through the AIRNow-Tech Monitoring Site page
 - Define monitors for the neighboring, or “Buddy”, site check

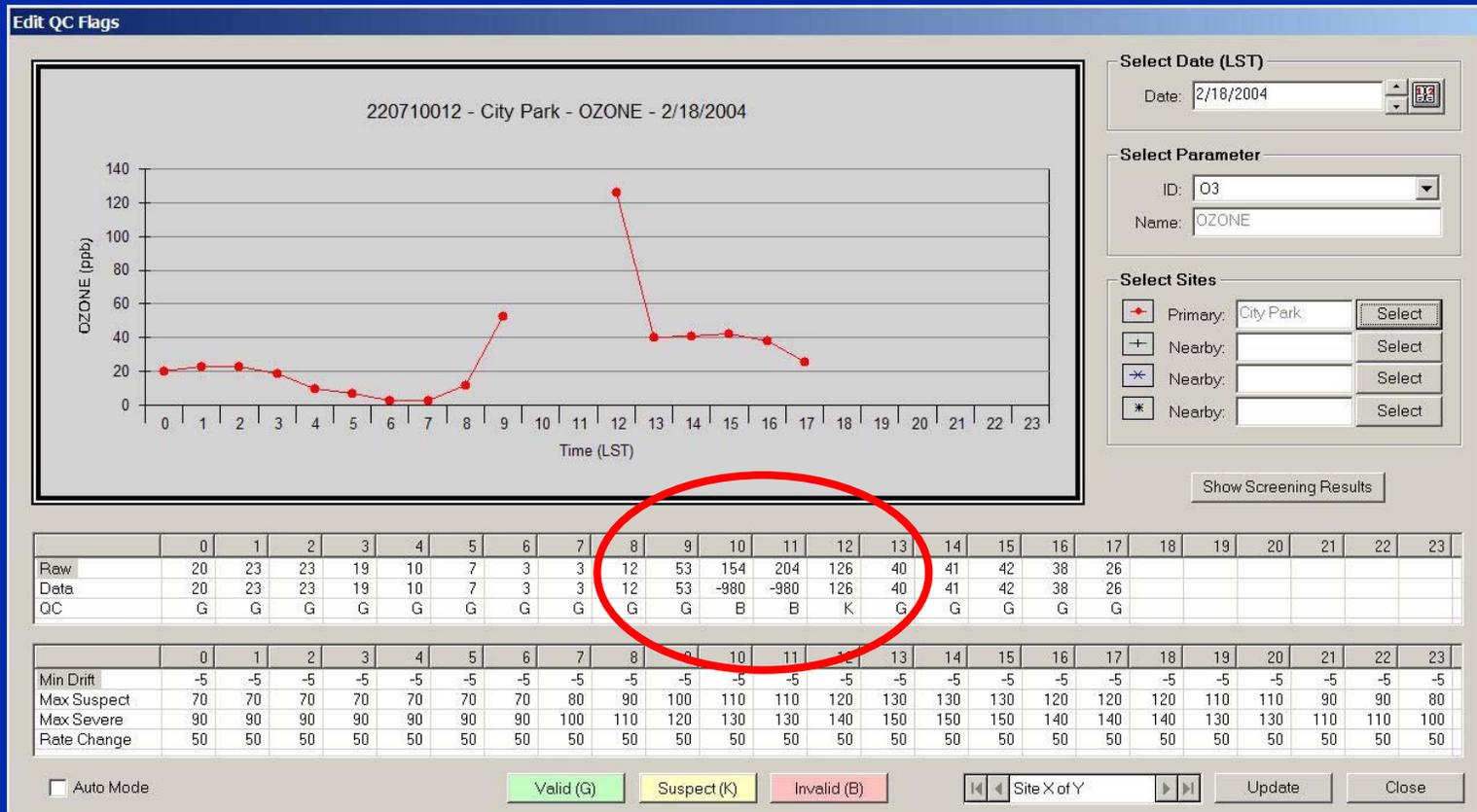
Operational Issues – Data Quality (2 of 5)

- Data that fail QC checks are reviewed hourly and more frequently in areas with current high pollution levels



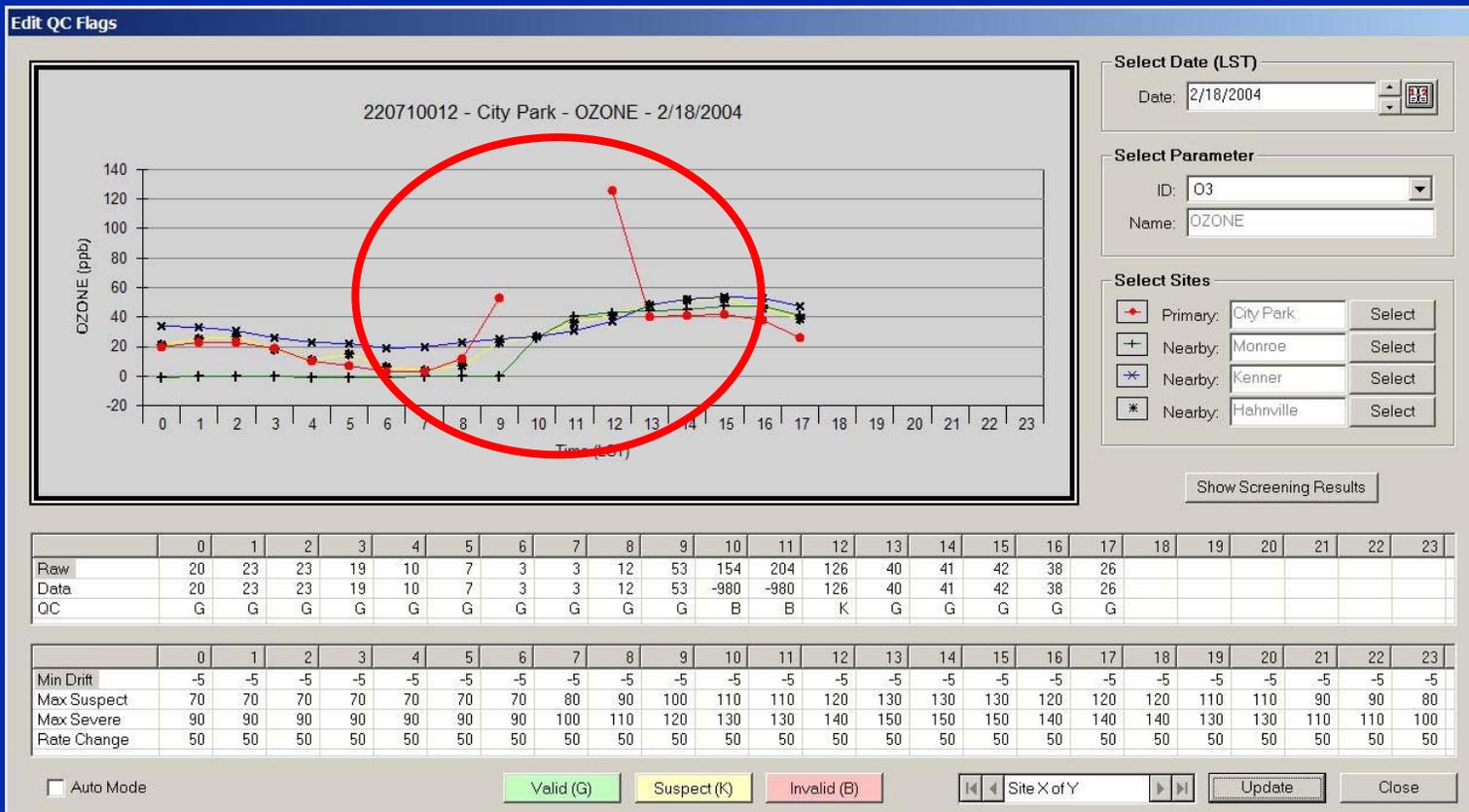
Operational Issues – Data Quality (3 of 5)

- QC checks are only as good as the defined criteria



Operational Issues – Data Quality (4 of 5)

- “Buddy” sites need to be defined by each agency for all monitors (where applicable)



Operational Issues – Data Quality (5 of 5)

- “Buddy” sites can be set up through the AIRNow-Tech Monitoring Sites page

Monitoring Sites - QC Criteria

060670006 - Sacramento - Del Paso Manor

Parameter: **Ozone** Buddy Sites

- 060610006 - Roseville - n. sunrise blvd
- 060670002 - North highlands - blackfoot way
- 060670010 - Sacramento - t street
- 060670012 - Folsom - natoma street
- 060675003 - Sloughhouse

Buttons: Disable Editing, Save, Delete all buddy sites , Site Selector

Hour [LST]	Max Suspect	Max Severe	Rate Of Change	# of Buddy Sites	Buddy Average	# of Sticking Hours	Sticking Value	Minimum Drift
0000	11C	18E	60	3	50	5	40	-5
0100	11C	18E	60	3	50	5	40	-5
0200	11C	18E	60	3	50	5	40	-5
0300	10C	16E	60	3	50	5	40	-5
0400	10C	16E	60	3	50	5	40	-5
0500	10C	16E	60	3	50	5	40	-5

Select Monitoring Sites

Filters

Agency: Select Agency Parameter: Select Parameter

Map Domain: Select Map State: Select State

EPA Region: Select Region County: Select County

AIRS Code: All MSA: Select MSA

Buttons: Retrieve Sites, Reset Filters

All Sites

- 060170010 - Placerville
- 060170011 - South lake
- 060170012 - Echo sum
- 060170020 - Cool - high
- 060610002 - Auburn - c
- 060610004 - Colfax - ci
- 060610006 - Roseville -
- 060670002 - North high

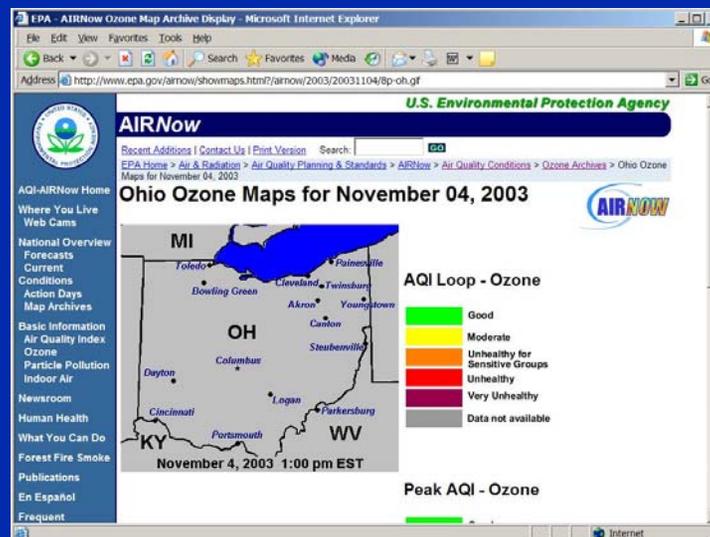
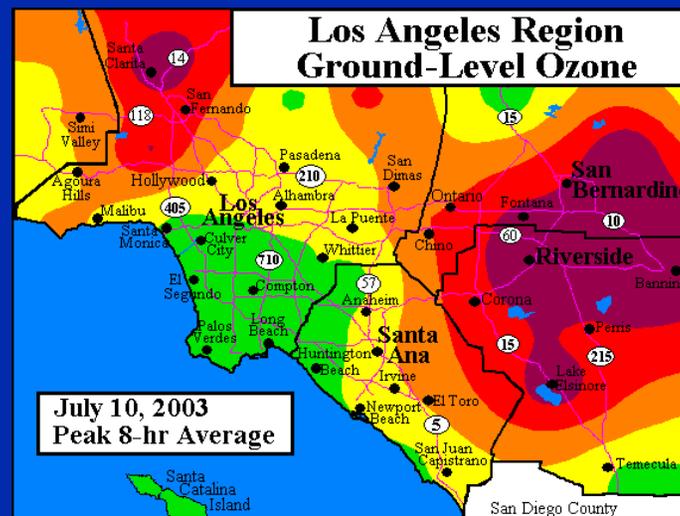
Selected Sites

- 060610006 - Roseville - n.
- 060670002 - North highlan
- 060670010 - Sacramento -
- 060670012 - Folsom - nat
- 060675003 - Sloughhouse

Buttons: Submit, Close

Operational Issues – Product Turn-Around

- Individual maps are produced when data completeness is high enough
- Example: Southern California data are received by 3 minutes past the hour; the map is uploaded to AIRNow a few minutes later
- A forced production of all maps occurs at 35 minutes past the hour
- Maps are in current local time and data are end-hour, meaning AQI on maps may differ from true daily AQI maximum
- Gray maps indicate too much missing data to contour
- Mirror process on EPA FTP servers delays display on AIRNow by 10 to 20 minutes; solution will be implemented in 2004
- The sooner you deliver your data, the faster products can be made and sent to AIRNow and the media



Operational Issues – Forecasting (1 of 2)

- Files are generated at 5 and 35 minutes past the hour and uploaded to AIRNow
- Daily cutoff for forecast submittal is 4 p.m. Eastern Time (ET)
- When a forecast is missing or the default is unreasonable, STI meteorologists will issue the forecast after 4 p.m. ET
- File is sent to The Weather Channel hourly
- File is sent to *USAToday* at 5 p.m. ET
- Submitted forecasts can be displayed for each pollutant
- Erroneous forecasts issued on the current day – e.g., ozone submitted instead of $PM_{2.5}$ – can be deleted

AIRNOW Forecast System

Standard Forecast | Bulk Forecast | Set Defaults | Query Database | Verification Sites | Forecast Accuracy

Current Date: Thursday February 19, 2004
Organization: Minnesota Pollution Control Agency
City: Minneapolis-St. Paul (MN)
Display Forecast for: PM_{2.5}

Day	Yesterday (Observed) Wed 2/18	Today Thu 2/19	Next Day Fri 2/20	Day 2 Sat 2/21	Day 3 Sun 2/22	Day 4 Mon 2/23	Day 5 Tue 2/24
Pollutant	PM _{2.5}	PM _{2.5}	PM _{2.5}	PM _{2.5}	PM _{2.5}	PM _{2.5}	PM _{2.5}
AQI Number	93	110	70	0	0	0	0
or							
AQI Category							
Good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moderate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unhealthy for Sensitive Groups	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Unhealthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Very Unhealthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Action Day		<input checked="" type="checkbox"/>	<input type="checkbox"/>				
Discussion	<input type="text"/>						

Submit Reset Prev City Next City Set All Cities Delete Forecast

Operational Issues – Forecasting (2 of 2)

- Verification sites need to be defined by all agencies
- Choose all sites that represent each city, regardless of pollutant
- Sites are used to calculate previous-day AQI maximum and real-time AQI
- AQI information is sent to the media for web site and on-air use, like The Weather Channel's "Local on the 8's"
- Agencies should review current default forecast settings
- New functionality in 2004 will allow defaults to be set for each pollutant

AirNow Forecast System

Standard Forecast | Bulk Forecast | Set Defaults | Query Database | Verification Sites | Forecast Accuracy

Verification Sites

Site Filters

Region: Select Region
Agency: Select Agency
State: Select State
County: Select County
MSA: Select MSA

City

Minneapolis-St.

Retrieve Sites Retrieve City Sites

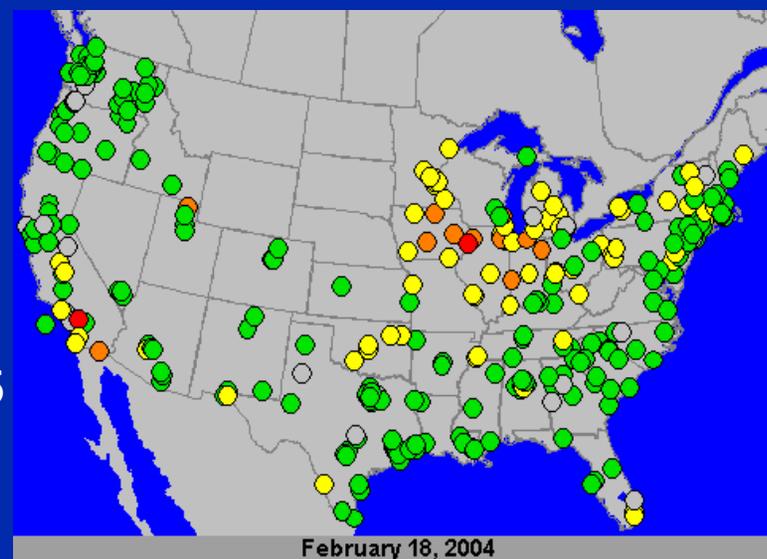
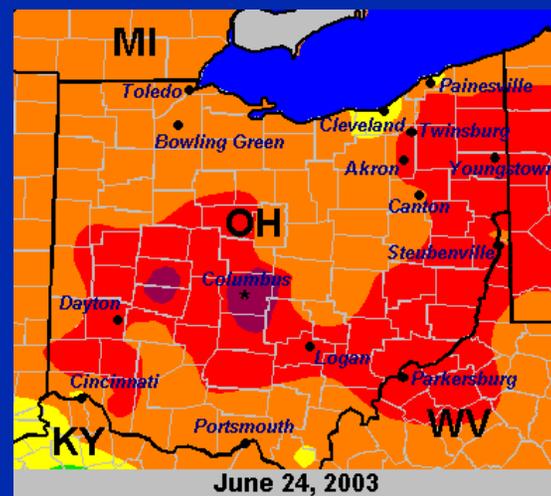
Choose Sites **Selected Sites**

270031001 - Cedar cre
270031002 - Anoka cnt
270370470 - Westview
270376018 - Dakota cn
270495302 - Stanton ai
270530963 - Philips an
271230871 - Harding hi
271390505 - Shakopee

Submit

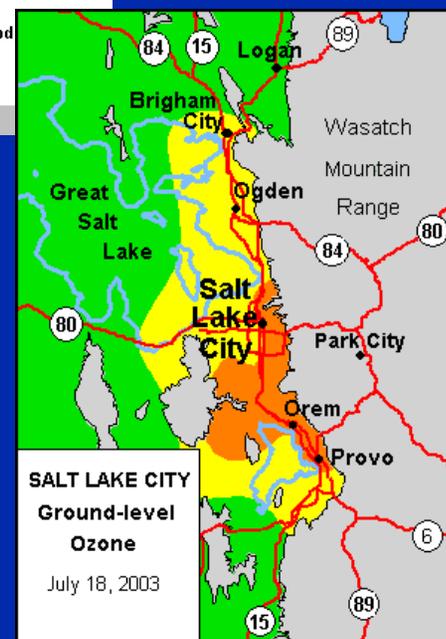
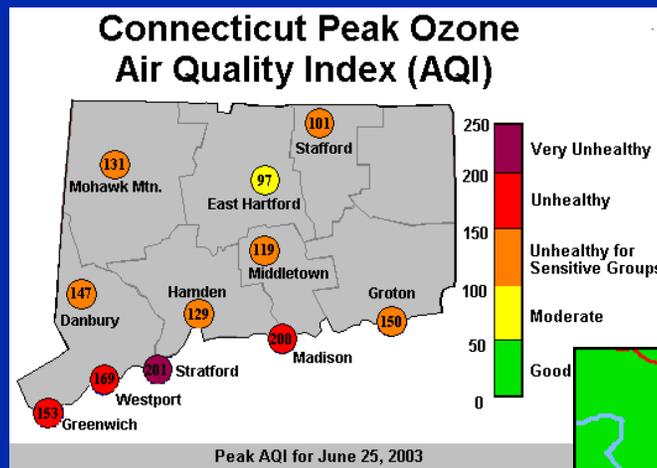
Products – Ozone and PM_{2.5} Maps (1 of 2)

- Ozone contour maps are produced hourly from 8 a.m.–8 p.m., 24 hours a day and year-round if requested
- PM_{2.5} point maps (public and private) are produced 24 hours a day; some gaps during the night
- Peak 1-hr and 8-hr ozone maps and 24-hr PM_{2.5} maps are created during the 8 a.m. local hour for each map
- Where to find the files:
 - www.epa.gov/airnow/today
 - www.epa.gov/airnow/yesterday
 - Example date —
www.epa.gov/airnow/2003/20030625
 - [ftp.airnowdata.org](ftp://airnowdata.org) (username and password required)



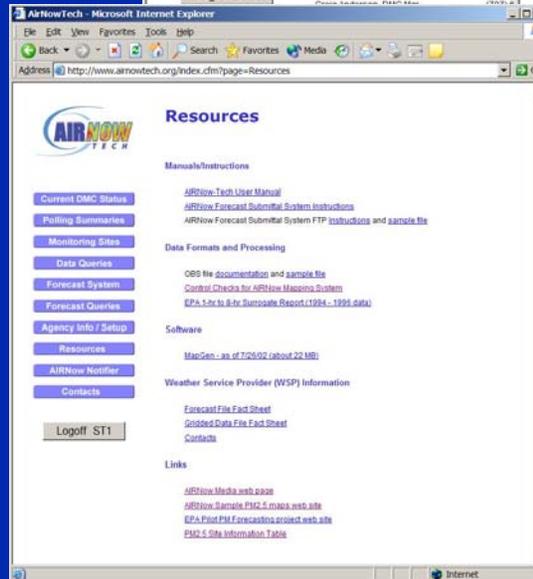
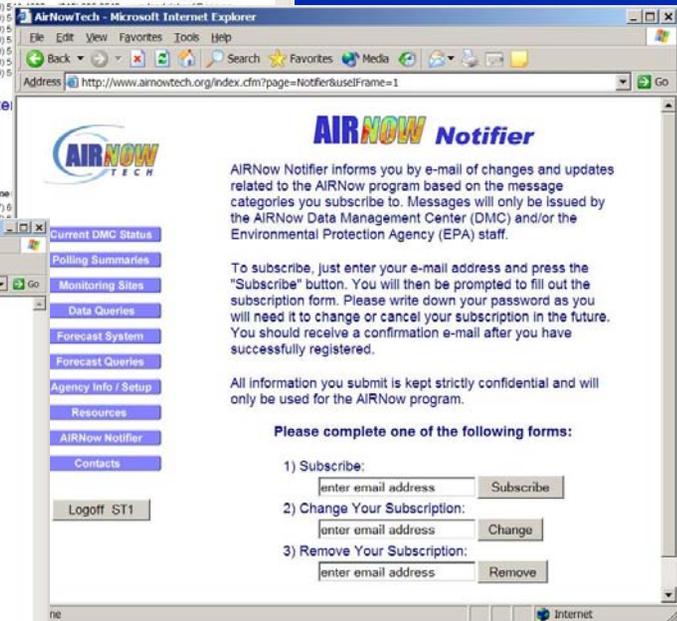
Products – Ozone and PM_{2.5} Maps (2 of 2)

- Specialized maps created for the northeastern states
- Basemaps will be upgraded in 2004
- Mapping system can produce additional domains if desired—contact EPA or DMC



Resources – AIRNow-Tech

- Data Queries (including hourly data, summaries, graphs, and exports)
- Resources
- Notifier
- Contacts



Resources – AQ Forecast System

- Enables regional and local discussions
- Offers customizable links
- Can display forecast tool output
- Bases climatology graphs on FRM and/or continuous data
- Offers customizable e-mail list
- Submits to AIRNow
- Contact DMC for access

AIRNow Forecaster - Microsoft Internet Explorer
Address: http://www.airnowforecaster.org/index.cfm?page=city

City Forecast

Region: Great Lakes Date: 02/18/2004
City: Cleveland-Akron-Lorain Retrieve Date
Pollutant: 24-hr avg PM2.5 [ug/m³] Units: Concentration

(ug/m ³)	2/18	2/19	2/20	2/21	2/22
12Z CART	26	22	22	13	
00Z CART	49	22	22		
Conceptual					
Average					

Meteorological Links Manage Links
48-hr Observations NGM MOS for CLE Zone Forecasts
ETA FOCUS for CLE Radar - CLE
ETA MOS for CLE Radar - IR
Forecast Discussion Satellite - VIS
NGM FOCUS for CLE Sounding - PIT

Regional Forecast Discussion for 2/18/2004
Today, a strong temperature inversion has trapped particles near the ground. At the surface, a low pressure system moving through Ontario will cause moderate southwesterly winds across the Great Lakes.

Local Forecast Discussion for 2/18/2004
Light winds, high background particle concentrations, and a moderate temperature inversion will cause PM2.5 levels to be high-end today. Tomorrow, moderate westerly winds will cause a moderate temperature inversion.

(ug/m ³)	Yesterday	2/18	2/19	2/20	2/21	2/22
Forecast	39	40	35			
Action Day						

Check Spelling Save Save Region
Send Send Region Send Options Reset



Conclusion

- Tell us about your ideas for new products
- What other resources would be helpful to you or others at your agency?
- Would you like any new mapping domains?
- Do you have any new forecast cities?

Please talk to EPA or us at the DMC
(airnowDMC@sonomatech.com) if you have any
comments, suggestions, or questions