

Air Quality Summary

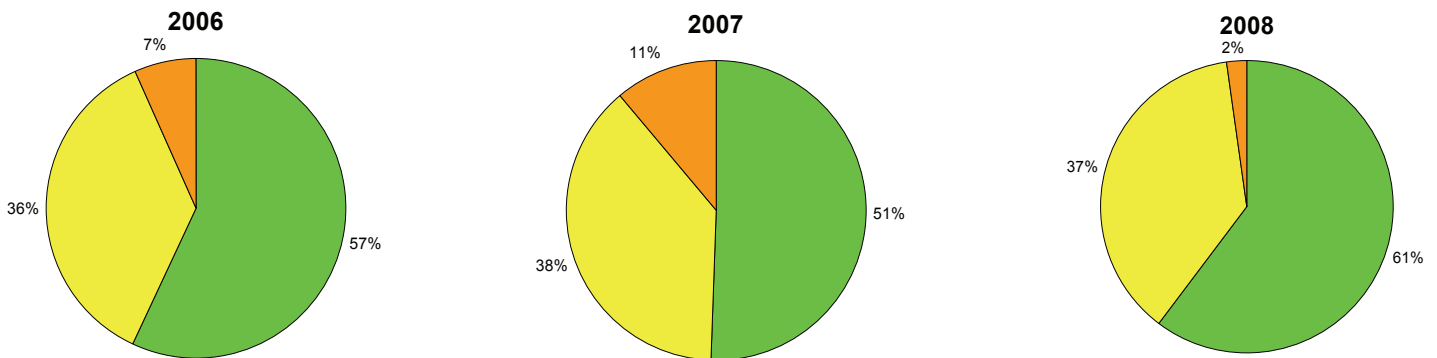
Youngstown: April 1 through October 31, 2008

The summer of 2008 was cleaner than usual, despite normal weather conditions. There were fewer Unhealthy for Sensitive Groups (USG) days compared with the last two summer seasons in the Youngstown-Warren region.

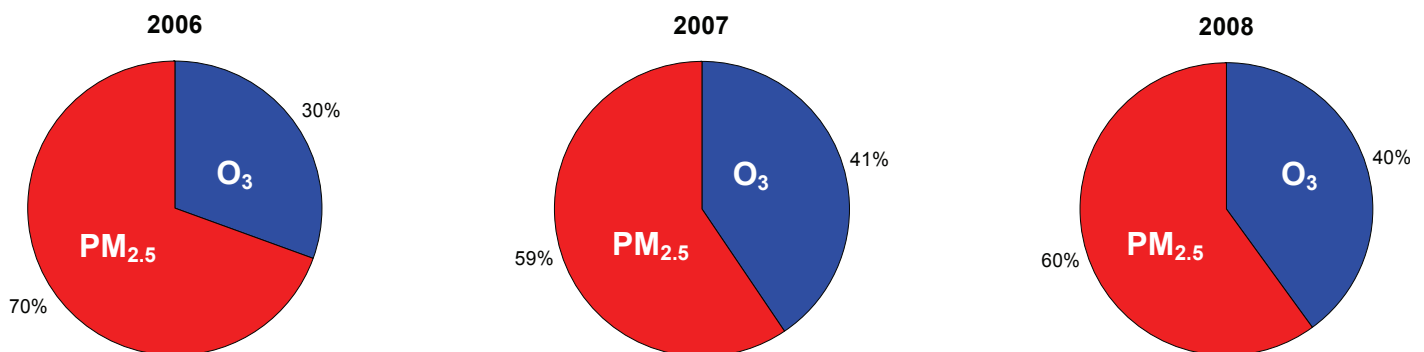
Sonoma Technology, Inc. (STI) meteorologists predicted air quality standards would be exceeded on several days during the season based on weather conditions that have historically resulted in exceedances. On many of these days the weather forecast was verified but the air quality was cleaner than forecasted. Because days with high AQI levels are driven by both weather and emissions, improvements in air quality were likely due to reduced emissions. An improvement across the eastern U.S. is indicated by the fewer number of days on which the USG ozone threshold was exceeded this year, compared with last year and the 10-year average (see map on page two).

Note: In early spring 2008, a more stringent ozone standard of .075 ppm replaced the .084 ppm standard. A PM_{2.5} standard of 35.5 µg/m³ was also implemented in fall 2006. The data shown in this flyer are based on these new standards for all years, ensuring that previous years' data are comparable with 2008 data.

Number of Days at Each AQI Level for the Maximum Pollutant

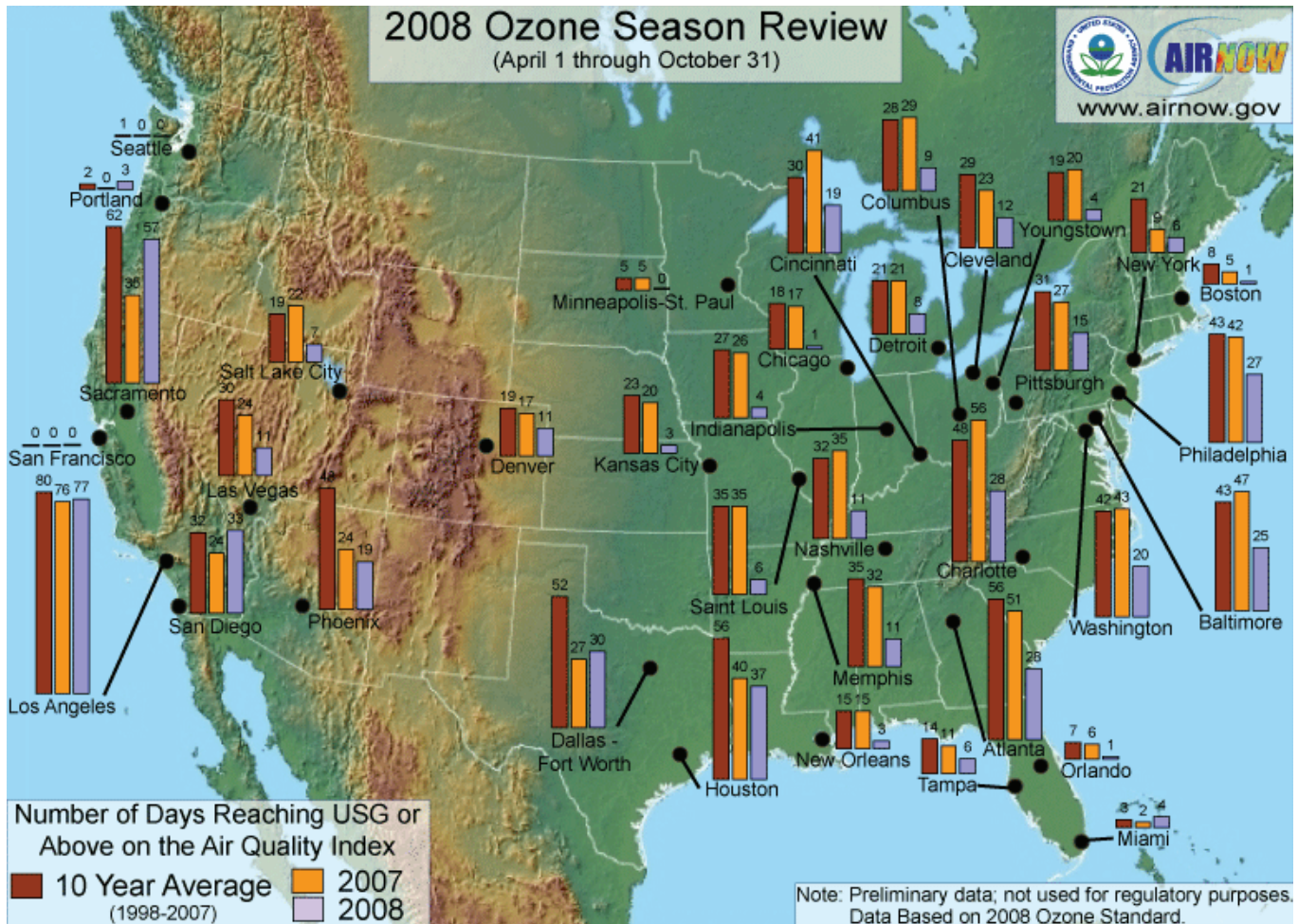


Percent of Days as the Dominant Pollutant at Moderate or Above



National Air Quality Comparison

Days Reaching USG Levels or Above



During the 2008 summer season in Youngstown, the number of days on which ozone AQI levels reached USG levels or above was lower than those observed during the 2007 season. In addition, 2008 ozone AQI levels were lower than the 10-year average. This decrease in ozone levels was apparent across most of the eastern U.S., particularly in the Midwest. Youngstown, specifically, had only four ozone USG days in 2008, compared with a 10-year average of 19 per year.



Good 0 - 50	Moderate 51 - 100	Unhealthy for Sensitive Groups 101 - 150	Unhealthy 151 - 200	Very Unhealthy 201 - 300
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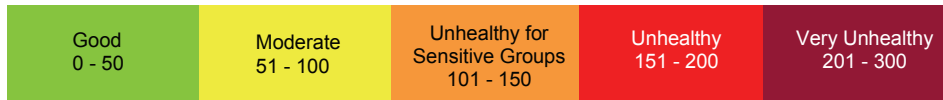
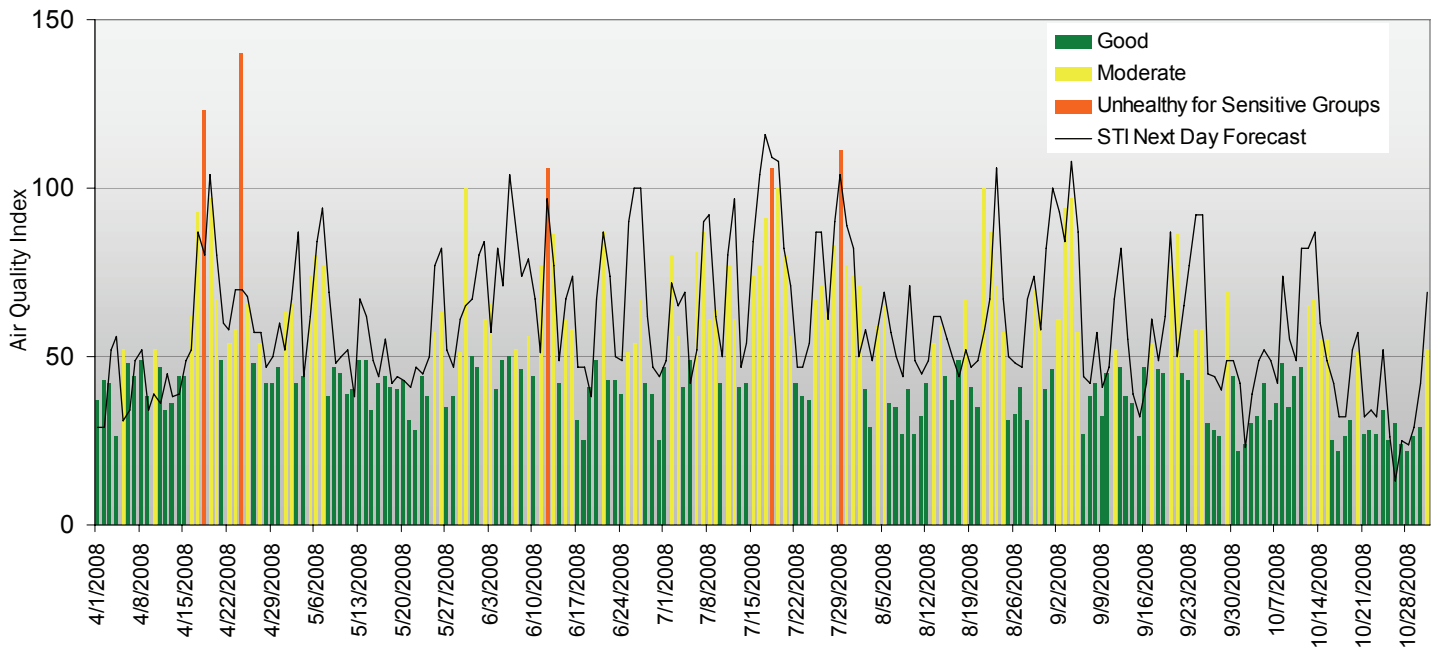
Highest AQI Days

2008 Exceedance Days

DATE	OBSERVED AQI	POLLUTANT	MONITORING SITE
4/18/08	116	Ozone	Kinsman
	123	PM _{2.5}	Warren-Draper St.
4/24/08	140	PM _{2.5}	Youngstown-Head Start
6/12/08	106	Ozone	Trumbull
7/18/08	104	Ozone	Kinsman and Trumbull
	106	PM _{2.5}	Youngstown-Head Start
7/29/08	111	Ozone	Trumbull

During the 2008 summer season, the 8-hr ozone and 24-hr PM_{2.5} standards were exceeded on five days in the Youngstown area. Of these exceedances, two were ozone, one was PM_{2.5}, and two were both ozone and PM_{2.5}.

Daily Maximum AQI Values and Forecasts



Air Quality Advisory Days

Air Quality Advisory Days

Thirteen Air Quality Advisory Days were called during the 2008 summer season. Maximum AQI levels reached the USG threshold or above on three of these days. When AQI levels did not reach USG as predicted the air was still polluted, averaging 82 AQI.

DATE	POLLUTANT	NEXT-DAY FORECAST	SAME-DAY FORECAST	MAXIMUM OBSERVED
4/18/08	Ozone	51	101	116
	PM _{2.5}	80	120	123
4/19/08	PM _{2.5}	104	102	80
6/6/08	Ozone	104	104	50
7/16/08	Ozone	104	104	64
7/17/08	Ozone	116	101	90
7/18/08	Ozone	109	104	104
	PM _{2.5}	102	112	106
7/19/08	Ozone	101	101	100
	PM _{2.5}	108	103	91
7/29/08	Ozone	104	106	111
	PM _{2.5}	101	105	92
8/22/08	Ozone	67	111	87
8/23/08	Ozone	106	106	71
9/3/08	PM _{2.5}	67	105	94
9/4/08	Ozone	101	101	97
	PM _{2.5}	108	108	92
9/21/08	PM _{2.5}	42	110	86



Next-day Forecast Performance

Next-day Forecast Statistics for Moderate-USG AQI Threshold

STI provides current, next-day, and extended AQI daily forecasts for the Youngstown-Warren region. A statistical summary of next-day forecasting performance is shown in the charts below using a variety of measures described at the bottom of the page. Statistics are calculated based on a comparison between forecasted and observed AQI levels for the Moderate-USG threshold.



The overall forecast performance was good. Of the 214 forecasts issued, 202 were correct, resulting in a Percent Correct of 95%. In addition, five days had observed AQI levels above the 101 AQI threshold and STI meteorologists correctly forecasted two of these days, which resulted in a Probability of Detection of 40%. Finally, of the 13 days forecasted to exceed 100 AQI, ten of them did not verify, leading to a False Alarm Rate of 77%. STI meteorologists conducted several case studies on missed forecasts to improve the False Alarm Rate in the future. The chart at the bottom of page three shows that STI was able to capture the AQI trend for most episodes.

Statistical Measures

Percent Correct (PC): The percentage of forecasts that matched observations.

False Alarm Rate (FAR): The percentage of cases for which a forecast of high pollution (at or above the threshold) was incorrect.

Probability of Detection (POD): The ability to correctly predict high-pollution events (at or above a certain threshold).

