Air Quality Summary

Youngstown-Warren Area

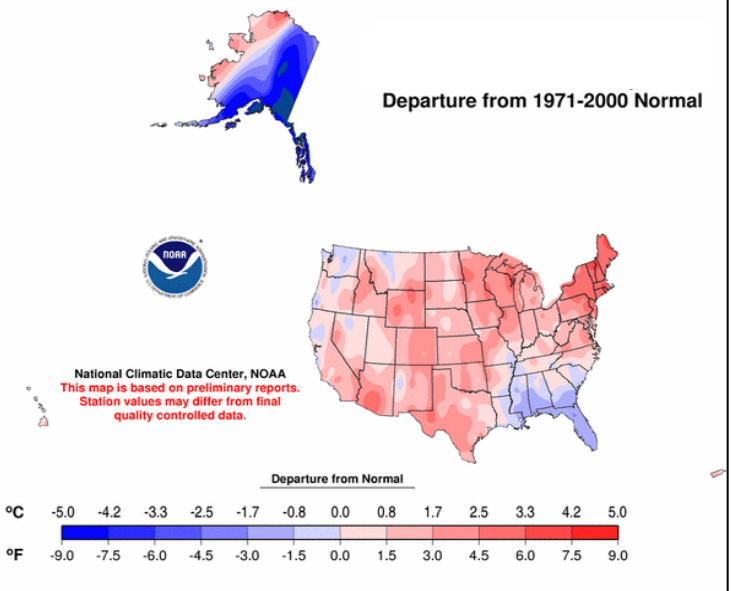
November 1, 2006 through March 31, 2007

This report provides a summary of seasonal and observed Air Quality Index (AQI) levels in the Youngstown-Warren area from November 1, 2006, through March 31, 2007. Seasonal AQI observations from previous years are provided for comparison. In addition, next-day forecast statistics are presented.

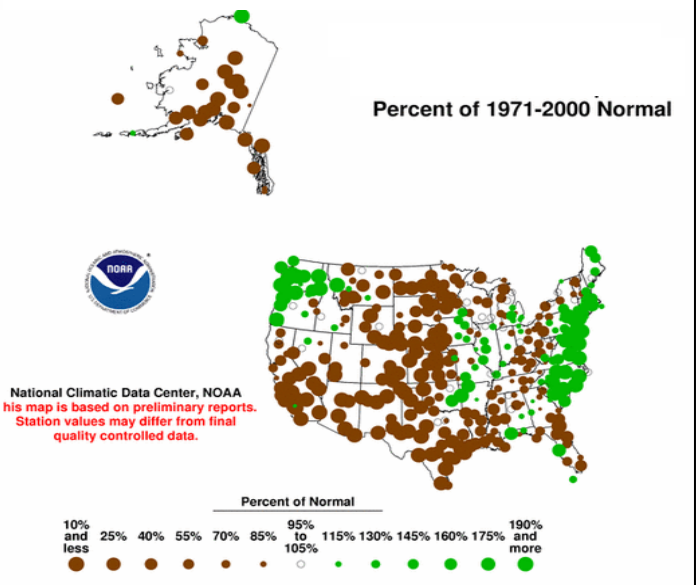
From November through March, warmer than normal temperatures were accompanied by wet conditions in the Youngstown-Warren area. Temperatures for the season were 1.5°F above normal and precipitation was almost 2 inches above normal. AQI levels reached Moderate on 32 days during the 2006-2007 season, compared with only 23 days during the 2005-2006 season. No Unhealthy for Sensitive Groups days were observed.

A majority of the Moderate days were observed in November 2006 (when temperatures were about 3°F above normal with below- to near-normal precipitation as shown below) and March 2007 (not shown). The weather conditions during the Moderate days included southerly winds, which tended to transport moisture in from the southeastern United States, enhancing secondary particle formation.

November 2006 Mean Temperature



November 2006 Precipitation



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Seasonal Summary

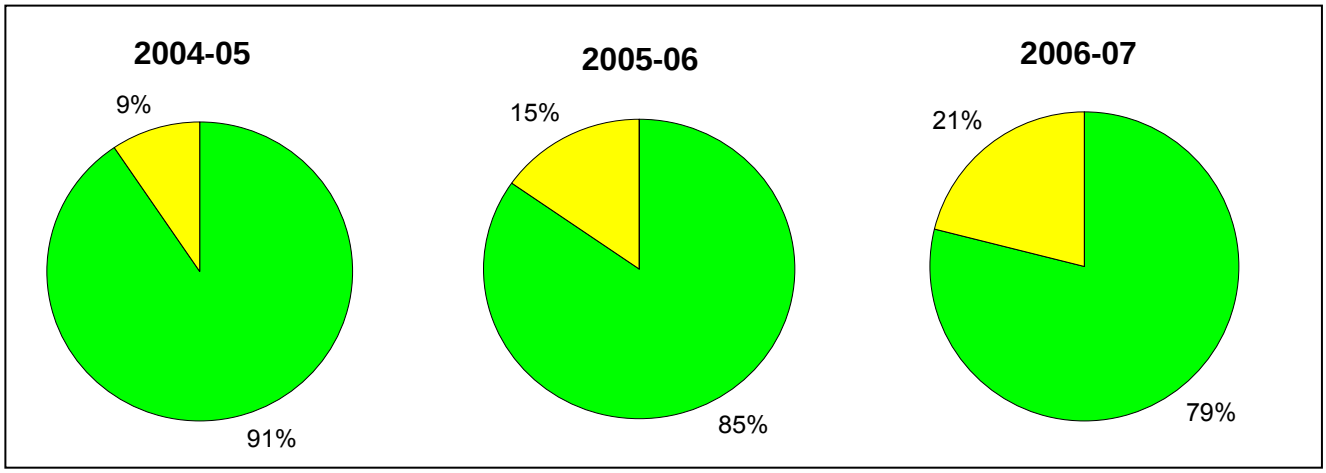
The pie charts illustrate by percent the annual variations in the distribution of days by maximum observed AQI category. Persistent weather patterns throughout each season can govern the frequency of days in each AQI category. Weather conditions during the 2004-2005 season were characterized by more frequent storminess and less stagnant conditions than in 2005-2006 and 2006-2007. In addition, the 2006-2007 season was characterized by warmer than normal conditions and above-normal precipitation. As a result, overall air quality in 2006-2007 was the worst of the three years.

The bar chart shows the daily maximum AQI levels for the 2006-2007 winter season and the corresponding color for the observed category. This chart illustrates the distribution of AQI throughout the season with late November and March generally having more days with higher AQI levels than other months.

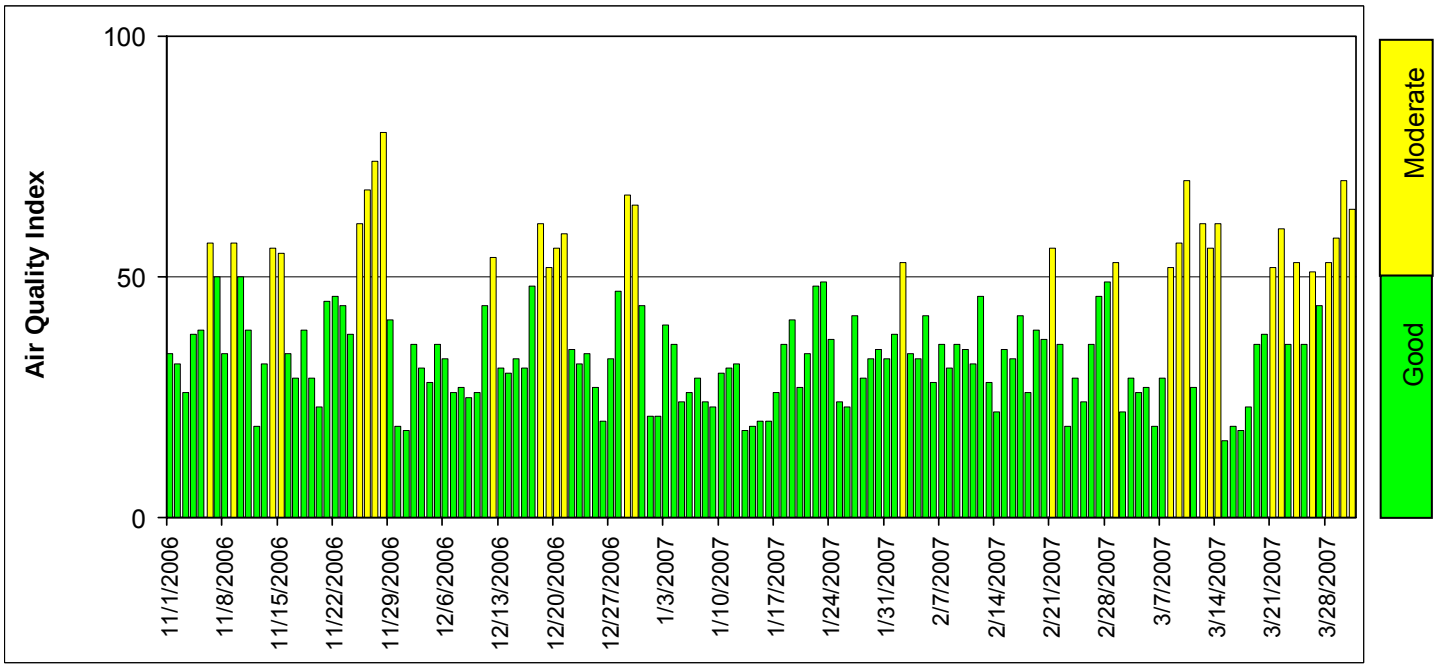
AQI AIR QUALITY INDEX

0 - 50	Good
51 - 100	Moderate
101 - 150	Unhealthy for Sensitive Groups (USG)
151 - 200	Unhealthy
201 - 300	Very Unhealthy

Percent of Days at Each AQI Level for November 1 – March 31



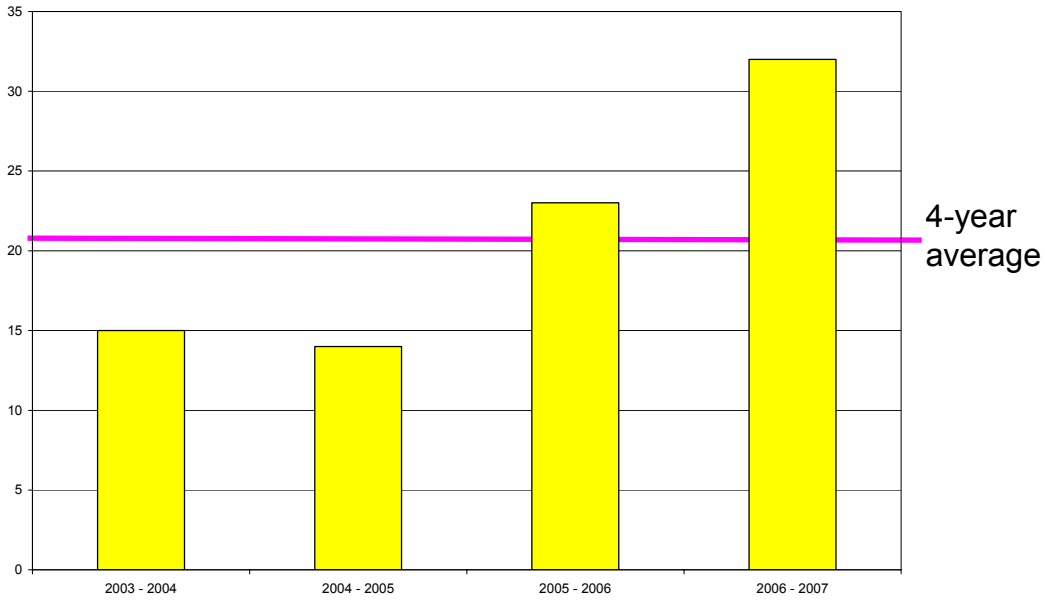
Daily Maximum AQI for November 1, 2006 – March 31, 2007



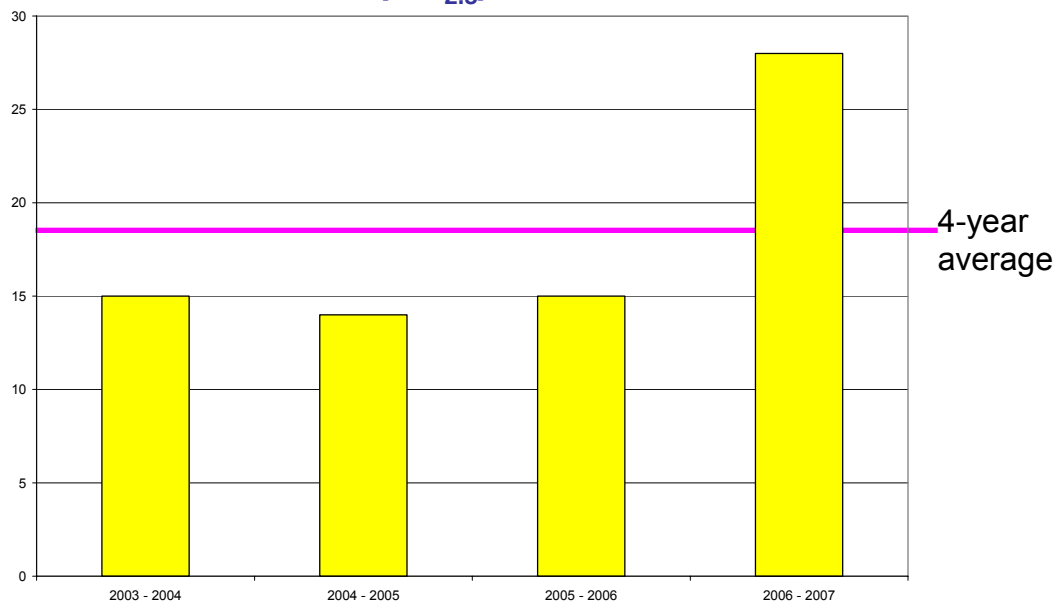
Seasonal Summary

Number of Moderate Days for $PM_{2.5}$ for November 1 – March 31

Particles ($PM_{2.5}$) – Warren and Head Start



Particles ($PM_{2.5}$) – Head Start



The above charts present the count of observed Moderate days during the season for each year from 2003-2004 through 2006-2007. Note that a second monitor was added during the 2005-2006 season at the Warren-Draper Street site.

On average, 21 Moderate days occurred during the season for particles. The bottom chart shows the number of Moderate days from the Youngstown–Head Start site only. On average, 18 days were Moderate at the Head Start site, with the 2006-2007 season experiencing 28 Moderate days.

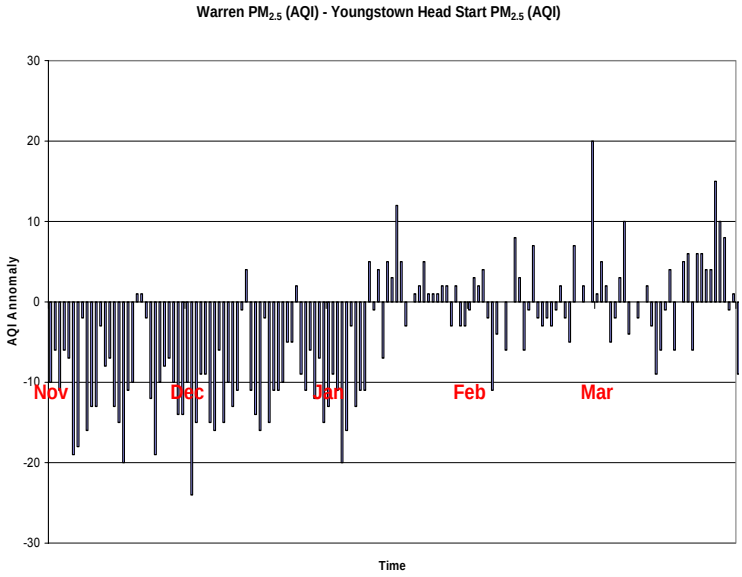
Highest AQI and Air Quality Advisory Days

Five Highest AQI Days

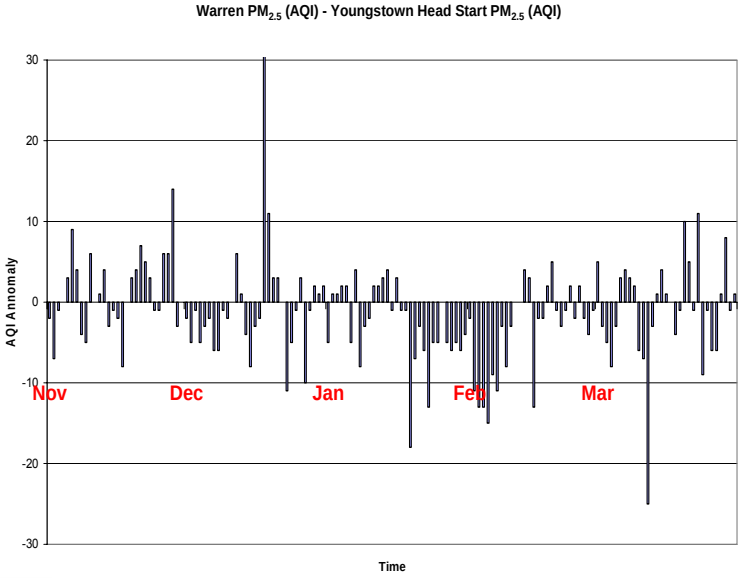
Date	AQI	Monitoring Site
11/28/06	80	Youngstown-Head Start
11/27/06	74	Youngstown-Head Start
3/10/07	70	Warren-Draper Street
3/30/07	70	Warren-Draper Street
11/26/06	68	Youngstown-Head Start

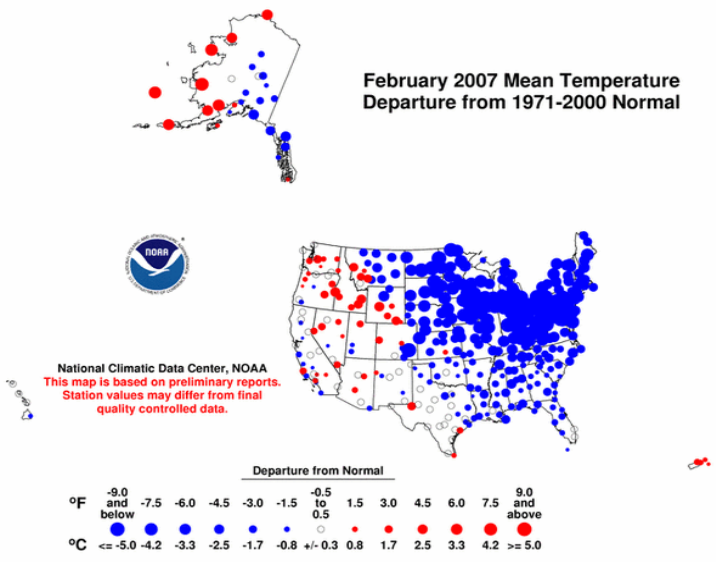
Three of the five highest AQI levels came as a three-day event at the Youngstown-Head Start site during the last week of November attributed to light to moderate southerly wind periods. These winds allowed particles to rise into the mid- to high-Moderate range.

2005-2006



2006-2007



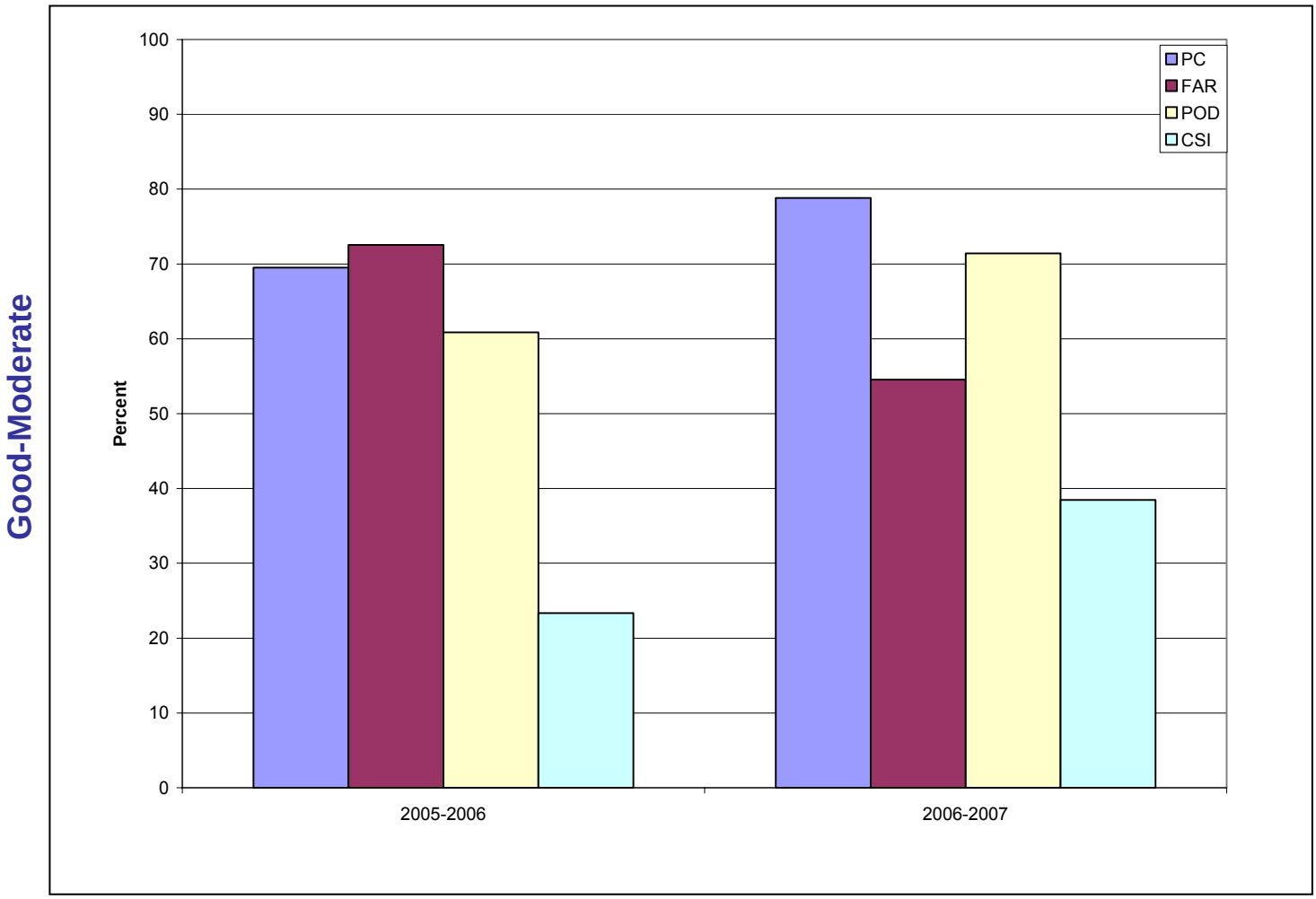


The two graphs above show the differences between the Warren-Draper Street site and the Youngstown-Head Start site for 2005-2006 (left) and 2006-2007 (right). During late January and early February, the Warren-Draper Street site remained higher for AQI levels. This coincides with a period of colder than average temperatures, as depicted in the figure to the left.

Next-day Forecast Performance

Current, next-day, and extended AQI forecasts are issued daily for the Youngstown-Warren area. A statistical summary of next-day forecast performance is provided using a variety of measures that are described at the bottom of this page. Statistics are calculated based on how forecasted AQI levels compare with observed AQI levels at the Good to Moderate threshold. Values for the previous year are included for comparison.

Next-day Forecast Statistics November 1, 2006 – March 31, 2007 for AQI Breakpoints



Percent Correct (PC): Shows percent of all forecasts that matched observations.

False Alarm Rate (FAR): Shows the percent of cases in which a forecast of high pollution (at or above the threshold) was wrong.

Probability of Detection (POD): Indicates the ability to correctly predict high-pollution events (i.e., at or above a certain threshold).

Critical Success Index (CSI): Shows how well high-pollution events were predicted; unaffected by correctly forecasted, low pollution events.

The forecasts for Good-Moderate AQI threshold showed that

- Performance generally improved from the 2005-2006 to the 2006-2007 period.
- FAR, PC, POD, and CSI improved from 2005-2006 to 2006-2007.

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