

Minnesota Air Quality Index (AQI) 2005 Summary

AQI Monitoring Network

Figure 1 shows the network of air monitors the MPCA uses to collect data for the Air Quality Index (AQI). The number and type of monitors vary from region to region, with the most monitors in the Twin Cities Metro area.

The 2005 monitoring network is similar to the network of 2004. A new particulate monitor was added to the site installation in Ely in 2005. The Detroit and Marshall regions were added to the monitoring network as well. Both of these regions have equipment to permit monitoring of ozone and fine particulate matter (PM2.5). The Detroit Lakes site was operational for 331 days, the Marshall site for 229 days.

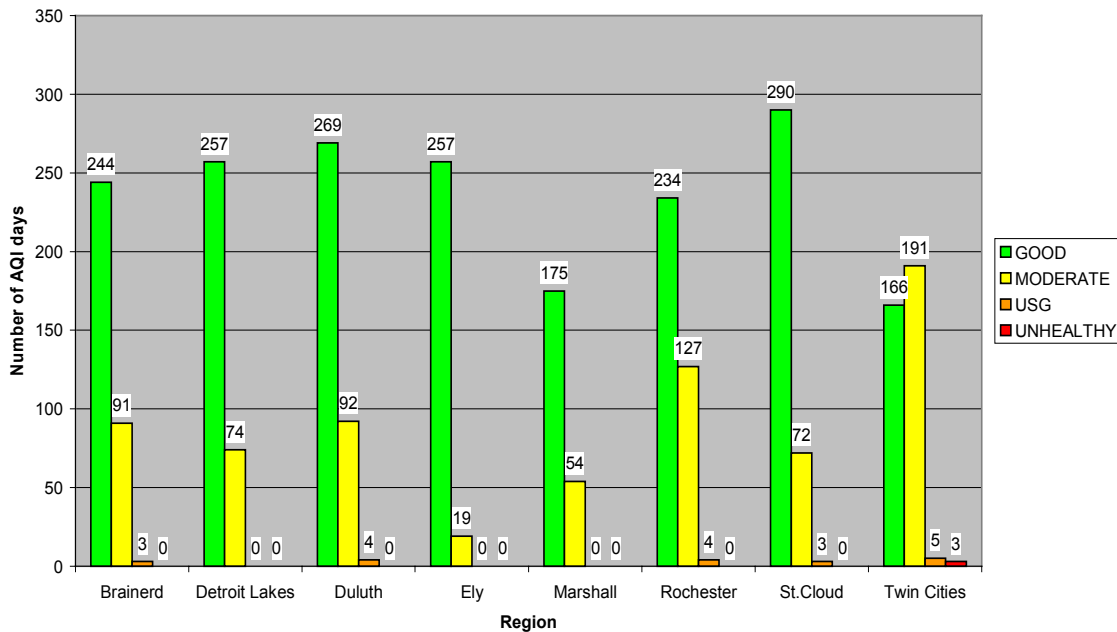
Minnesota Pollution Control Agency Air Quality Index (AQI) 2005 Operational Network Figure 1							
REGION	SITES	MONITORS				Total	
		O3	PM2.5	CO	SO2		
Brainerd	2	2	1			3	
Detroit Lakes	1	1	1			2	
Duluth	4	2	1	1		4	
Ely	1	1	1			2	O3 Ozone
Marshall	1	1	1			2	PM2.5 Particulate Matter
St. Cloud	2	1	1	1		3	CO Carbon Monoxide
Rochester	1	1	1			2	
Twin Cities	12	7	5	3	2	17	SO2 Sulfur Dioxide
TOTALS							
8	24	15	13	5	2	35	

2005 AQI Days by AQI Category and Region

Figure 2 summarizes the number of AQI days in each of the four health categories (Good, Moderate, Unhealthy for Sensitive Groups, and Unhealthy) for each of the eight current reporting regions (Brainerd, Detroit Lakes, Duluth, Ely, Marshall, Rochester, St. Cloud, and the Twin Cities). Each day's AQI is calculated by using the highest hourly AQI value that day for all sites and measured pollutants in a particular region. Some regions do not show a total of 365 days because of monitoring problems or the phase in timing for new regions.

The air quality throughout Minnesota in 2005 was generally satisfactory with about the same number of unhealthy days (days with an AQI value greater than 100) as in 2004. In 2005, both ozone and fine particulate contributed to these unhealthy days. Across the eight regions the ratio of Good/Moderate days varied from 0.86 to 13.52. The best ratio was at Ely (13.52) a more remote location away from numerous pollution sources. The poorest ratio was in the Twin Cities (0.86) where there were more Moderate days than those in the Good category (166/199). For the other 6 regions in the state this Good/Moderate ratio varied from 1.84 to 4.02. The Twin Cities also produced 3 AQI readings slightly over 150 (Unhealthy category) during one pollution incident covering three days (see next section).

Minnesota 2005
AQI Days by AQI Category
and Region
Figure 2



2005 Days with an AQI Greater than 100.

Figure 3 shows the days the AQI reached a value over 100. Some AQI days are consecutive and grouped together: these days were usually part of one multi-day air pollution event, a result of the same set of environmental conditions.

Past experience tells us that incidents involving fine particulate matter (PM2.5) may occur any time of the year. Ozone, however, forms in the summer in Minnesota, since it is created by a chemical reaction involving heat and sunshine.

The Twin Cities had the highest number of days with an AQI of more than 100 (8 days), followed by Rochester and Duluth (4 days), and Brainerd and St. Cloud(3 days).

Minnesota - 2005 Air Quality Index (AQI) Days with AQI > 100 Figure 3									
Date	Brainerd	Detroit Lakes	Duluth	Ely	Marshall	Rochester	St. Cloud	Twin Cities	
1/31/2005	135		105			129	139	155	
2/01/2005	132		106			131	142	156	
2/02/2005			111			149	108	153	
2/03/2005			101			134		128	Legend
4/16/2005								101	Ozone
6/02/2005	106								PM2.5
7/12/2005								111	
7/22/2005								116	
8/01/2005								101	
Totals	3	0	4	0	0	4	3	8	

The MPCA issued the following Air Alerts and Advisories in 2004:

Air Quality Alert (AQI rose to 90 or above)

January 31, 2005

February 1, 2005

Air Pollution Advisory (AQI forecast to rise to 90 or above)

January 30, 2005

February 24, 2005

June 17, 2005

June 22, 2005

