



Arizona Department of Environmental Quality

Janet Napolitano, Governor
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MONTHLY AIR QUALITY REPORT FOR
JANUARY 2006

AQI COLOR SCALE

GOOD	MODERATE	UNHEALTHY FOR SENSITIVE GROUPS	UNHEALTHY
0-50	51-100	101-150	151-200

Calendar of maximum AQI values & their corresponding color for January 2006*

*Preliminary data

SAMPLE POLLUTANT REPORTING BOX

1 (day of month)	O3	CO
	PM10	PM2.5

SUN			MON			TUE			WED			THU			FRI			SAT		
1	34	33	2	30	26	3	29	16	4	28	27	5	35	36	6	34	34	7	32	40
	55	97		57	40		60	40		98	58		91	50		84	44		74	56
8	34	36	9	35	42	10	34	38	11	33	41	12	24	33	13	33	36	14	31	42
	62	77		100	62		118	56		108	62		108	76		102	76		98	79
15	34	40	16	30	08	17	27	28	18	21	31	19	34	23	20	31	27	21	33	38
	75	46		52	24		82	55		95	86		115	71		75	57		67	64
22	35	22	23	36	40	24	36	20	25	35	26	26	36	27	27	32	26	28	34	19
	63	74		91	47		109	34		86	41		88	59		82	64		62	61
29	38	27	30	35	26	31	29	35												
	61	73		86	64		88	61												

Calendar of High Pollution Advisories and Health Watches issued during January 2006

SUN		MON		TUE		WED		THU		FRI		SAT	
1		2		3		4		5		6		7	
8		9	D	10	A	11	A	12	A B	13	A	14	D
15		16		17	E	18		19		20		21	
22		23		24	D	25		26	D	27	D	28	
29		30	D	31	D								

LEGEND

HIGH POLLUTION ADVISORIES

- A** = PM-10 High Pollution Advisory
- B** = PM-2.5 High Pollution Advisory
- C** = Ozone High Pollution Advisory

HEALTH WATCHES

- D** = PM-10 Health Watch
- E** = PM-2.5 Health Watch
- F** = Ozone Health Watch

Exceedance days during JAN 2006-

Total= 6	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
	01/10	118	PM-10	West Forty Third
		101	PM-10	Durango
	01/11	108	PM-10	Durango
		106	PM-10	West Forty Third
	01/12	108	PM-10	West Forty Third
		106	PM-10	Durango
	01/13	102	PM-10	West Forty Third
	01/19	115	PM-10	West Forty Third
		115	PM-10	Durango
	01/24	109	PM-10	Higley

High Pollution Advisories issued during JAN 2006-

Total= 5	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
	01/10	118	PM-10	West Forty Third
	01/11	108	PM-10	Durango
	01/12 x2	108	PM-10	West Forty Third
	01/13	102	PM-10	West Forty Third

Health Watches issued during JAN 2006-

Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
10	01/09	100	PM-10	West Forty Third
	01/10	56	PM-2.5	Phoenix Supersite
	01/11	62	PM-2.5	Phoenix Supersite
	01/13	76	PM-2.5	West Phoenix
	01/14	98	PM-10	Durango
	01/24	109	PM-10	Higley
	01/26	88	PM-10	West Forty Third
	01/27	82	PM-10	West Forty Third
	01/30	86	PM-10	West Forty Third
	01/31	88	PM-10	West Forty Third

Concentration Recap:

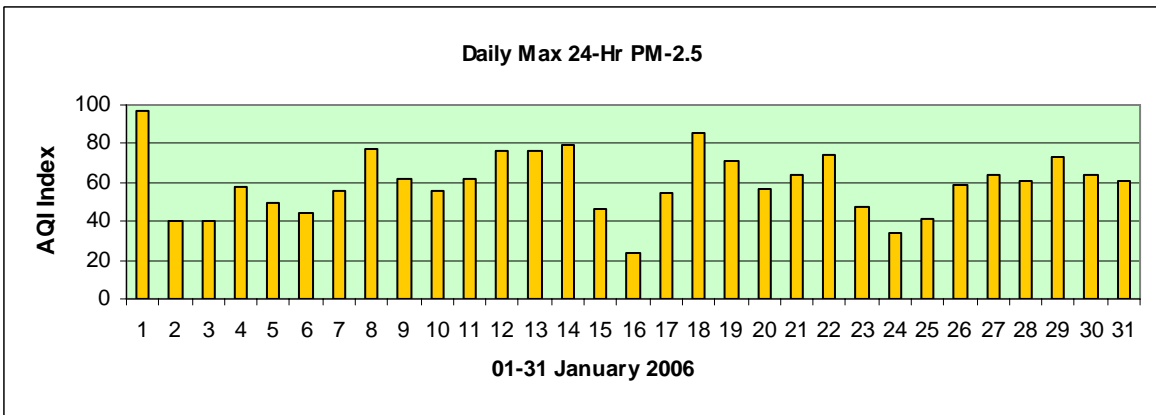
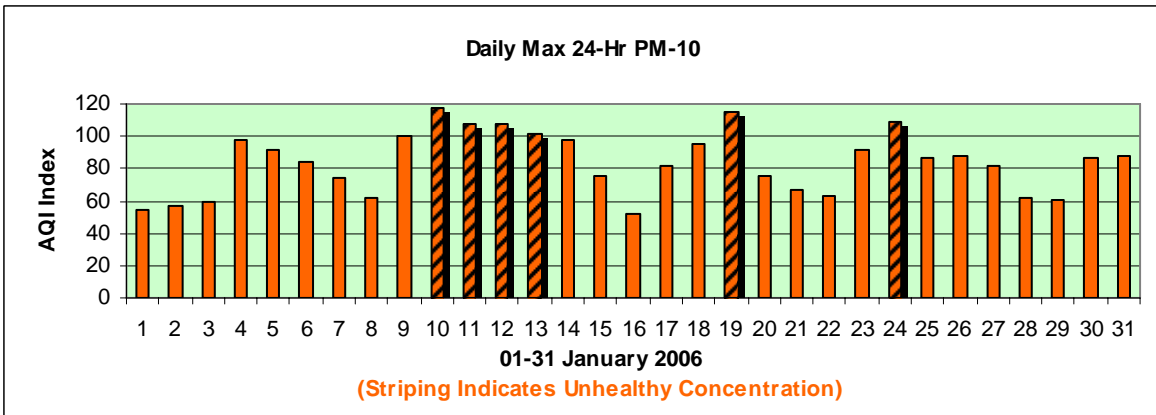
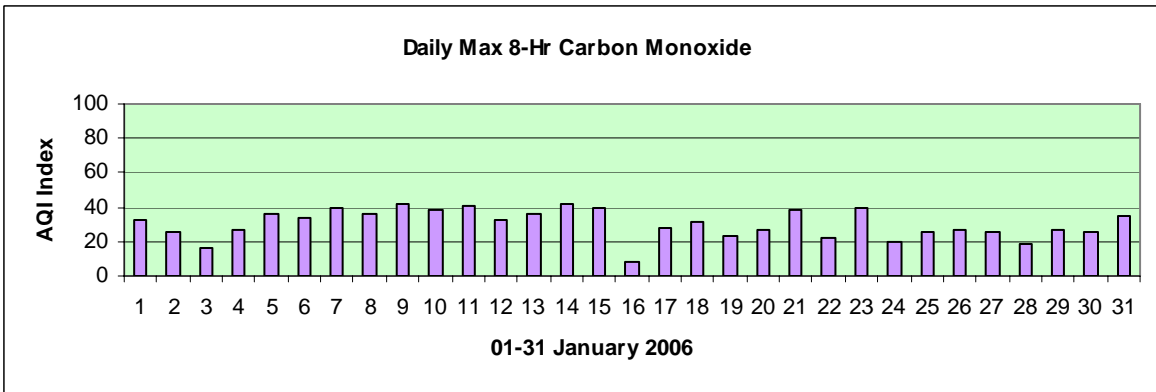
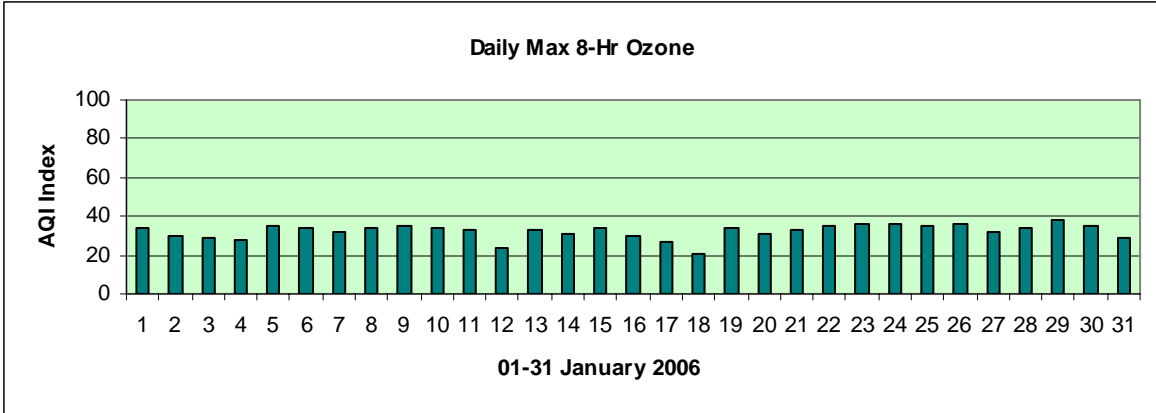
Days in the Good category:	0
Days in the Moderate category:	25
Days in the Unhealthy for Sensitive Groups category:	6
Days in the Unhealthy category:	0
Total Forecast Days:	31

PM-10 Exceedances by date*:

*Preliminary data = 24-hr average 154.5 ug/m3 or greater

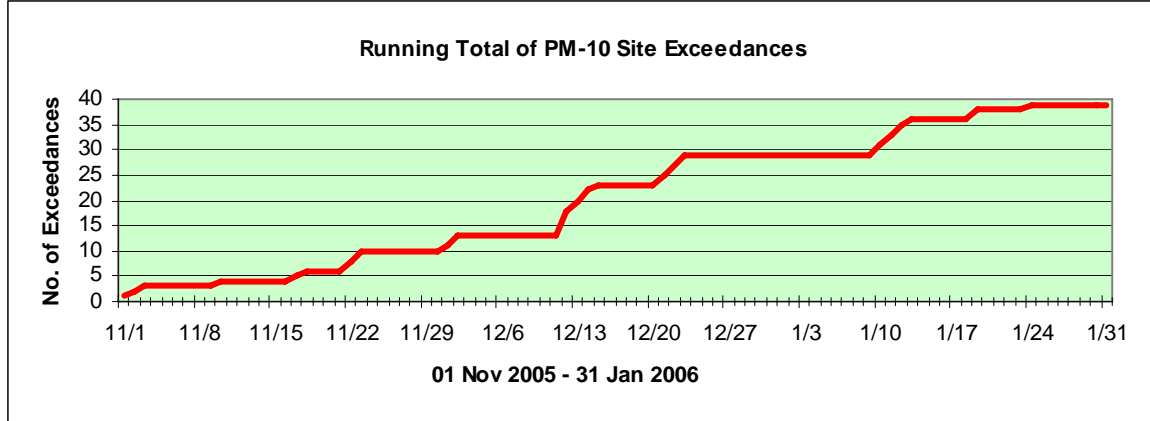
<u>Date</u>	<u>Site(s)</u>	<u>UG/m3/AQI</u>	<u>Equipment</u>	<u>Weather Type</u>
Jan 10	Durango	155.6/101	Continuous	Stagnation
	West Forty Third	190.5/118	Continuous	Stagnation
Jan 11	Durango	169.3/108	Continuous	Stagnation
	West Forty Third	165.7/106	Continuous	Stagnation
Jan 12	Durango	165.8/106	Continuous	Stagnation
	West Forty Third	169.8/108	Continuous	Stagnation
Jan 13	West Forty Third	157.2/102	Continuous	Stagnation
Jan 19	Durango	183.9/115	Continuous	Winds
	West Forty Third	184.0/115	Continuous	Winds
Jan 24	Higley	170.5/108	Continuous	Winds

Total: 10



Narrative:

Local ozone and carbon monoxide levels were in the good range of the Air Quality Index all month, while fine particle (PM-2.5) concentrations managed to stay below unhealthy limits. However, coarse particle (PM-10) levels reached unhealthy levels on multiple days for the third straight month; since November 01 2005 nearly 40 site exceedances of the 24-hr standard have occurred within the metro area (see chart below for a time series):



In a change from the previous two months, the mid-latitude storm track was much more active at this latitude during January. There were a total of seven trough passages this month and the associated increase in winds and instability resulted in only nine days with marginal dispersion compared to 19 days with poor or marginal dispersion during December 2005. Unfortunately, none of the storms were accompanied by local rainfall, and to make things worse gusty westerly winds with the January 19th trough produced lots of blowing dust over parts of the metro area that contributed to two more site exceedances. Then on the 24th of the month a tight pressure gradient formed between a strong high pressure system to the north of Arizona and a closed and cut-off low to the south. As a consequence, gusty southeasterly winds developed by late morning; during the afternoon blowing dust was reported over the southeast valley – including the monitoring site located at Higley. Once again, an exceedance of the 24-hr standard occurred. A breakdown of the exceedance day events can be seen in the graph below:

Detail of PM-10 exceedance day concentrations (ug/m3) during January 2006

Date	24-hr Avg. PM-10 ug/m3 & Site	Max 1-hr PM-10 ug/m3	Time of max 1-hr PM-10	Weather Type
Jan 10	190.5 – West Forty Third	688.7	0700	Stagnation
Jan 11	169.3 – Durango	431.8	0900	Stagnation
Jan 12	169.8 – West Forty Third	394.1	0900	Stagnation
Jan 13	157.2 – West Forty Third	343.9	0600	Stagnation
Jan 19	184.0 – West Forty Third	832.9	1100	Winds
Jan 24	170.5 – Higley	729.9	1400	Winds

The graph below illustrates a frequently seen local trend for local PM-10 concentrations to increase and peak during the work week then decrease during the weekend when PM-10 emission sources are less active.

Detail of maximum PM-10 AQI levels by day during January 2006

Day of week	Highest Daily Max PM-10 AQI	Lowest Daily Max PM-10 AQI	Average Daily Max PM-10 AQI
Monday	100	52	77.2
Tuesday	118	60	91.4
Wednesday	108	86	96.8
Thursday	115	88	100.5
Friday	102	82	85.8
Saturday	98	62	75.3
Sunday	75	55	63.2