



MONTHLY AIR QUALITY REPORT FOR
APRIL 2008

AOI COLOR SCALE

GOOD 0-50	MODERATE 51-100	UNHEALTHY FOR SENSITIVE GROUPS 101-150	UNHEALTHY 151-200
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Calendar of maximum AQI values & their corresponding color for April 2008*

*Preliminary data

SAMPLE POLLUTANT REPORTING BOX

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

SUN			MON			TUES			WED			THU			FRI			SAT		
						1	47	13	2	47	14	3	42	08	4	64	11	5	49	14
							58	61		62	55		53	46		58	39		54	36
6	51	07	7	67	07	8	77	09	9	67	07	10	58	07	11	50	19	12	64	13
	38	37		54	41		66	55		83	47		54	35		51	54		45	38
13	48	13	14	64	17	15	51	15	16	84	08	17	67	11	18	87	16	19	71	20
	49	52		55	65		75	45		101	58		47	33		70	57		64	56
20	87	10	21	101	11	22	111	14	23	87	16	24	106	08	25	54	11	26	90	13
	39	45		58	83		58	73		66	70		55	65		61	56		50	57
27	93	10	28	90	13	29	84	13	30	67	07									
	63	61		59	65		71	71		109	67									

Calendar of High Pollution Advisories and Health Watches issued during April 2008

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

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

Calendar of Meteorological Conditions observed in Metro Phoenix during April 2008

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

LEGEND

ELECTROMETEORS
A = Thunderstorm

HYDROMETEORS
B = Rain/Drizzle/Hail/Snow
C = Fog

LITHOMETEORS
D = Blowing Dust
E = Haze (vsby <10SM)
F = Smoke

Non-Ozone Exceedance days during APR 2008-

Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
2	04/16	101	PM-10	West Forty Third
	04/30	109	PM-10	West Forty Third

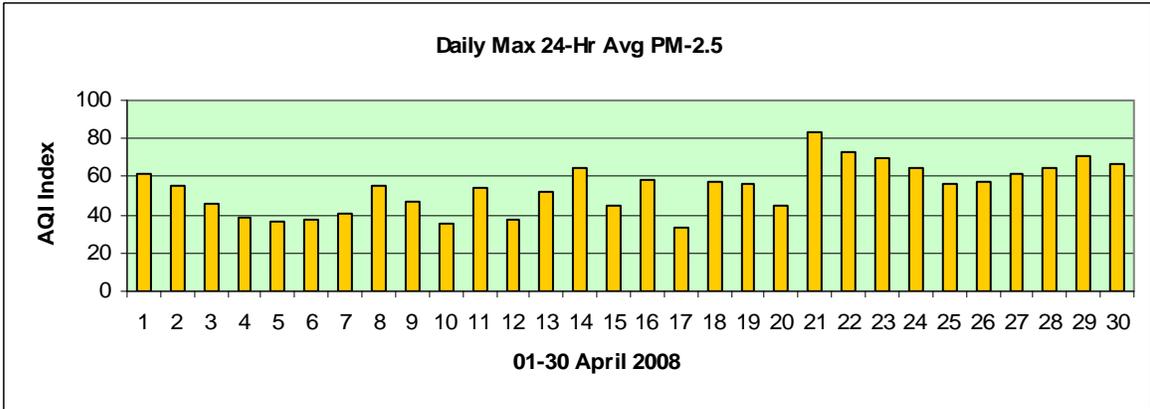
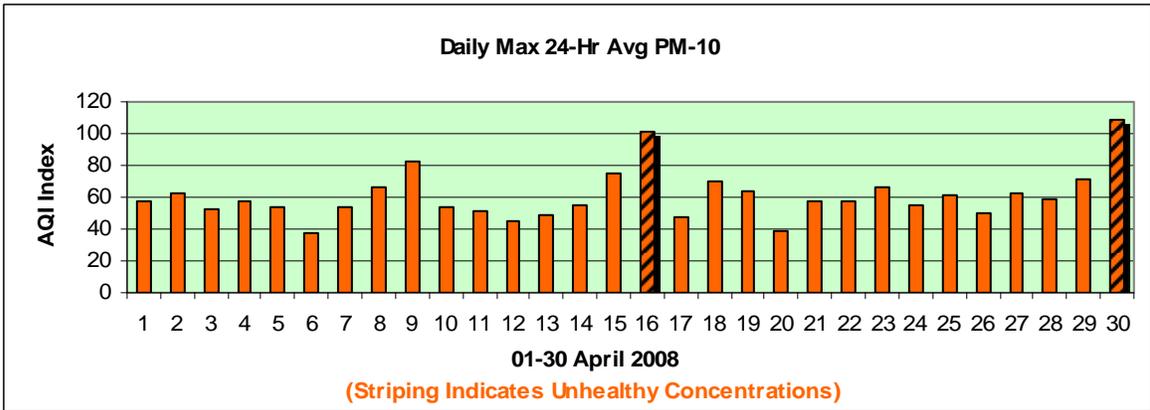
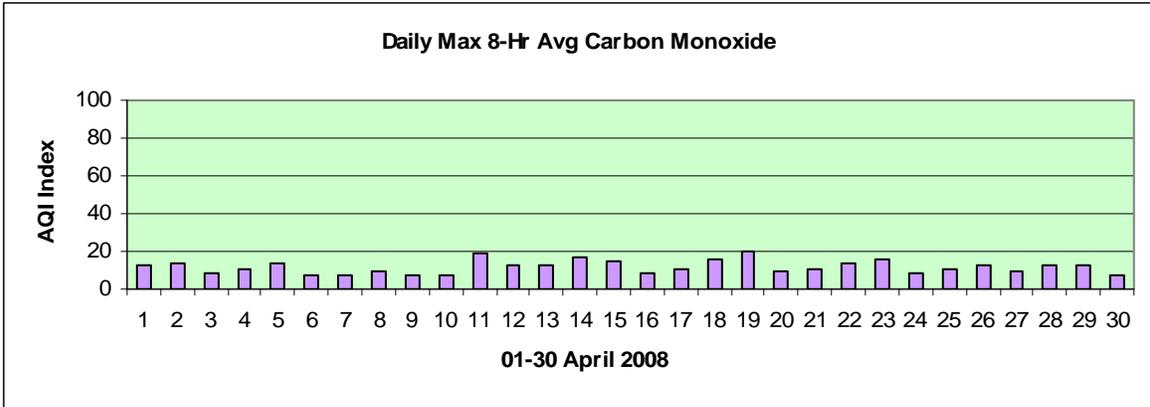
Non-Ozone Health Watches issued during APR 2008-

Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
4	04/08	66	PM-10	West Forty Third
	04/09	83	PM-10	West Forty Third
	04/15	75	PM-10	West Forty Third
	04/30	109	PM-10	West Forty Third

Non-Ozone High Pollution Advisories issued during APR 2008-

Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
0				

<u>Concentration Recap:</u>	Days in the Good category:	0
	Days in the Moderate category:	25
	Days in the Unhealthy for Sensitive Groups category:	5
	Days in the Unhealthy category:	<u>0</u>
	Total Forecast Days:	30



Narrative: An active mid-latitude storm track continued to bring rather atypical weather to the Phoenix area during April; for the fourth month in a row the long-wave trough position spent most of the month parked over Arizona. Maximum temperatures at Sky Harbor Airport were mostly in the 70's and 80's; on only eight days did highs make the 90's and the 100-degree F mark was not reached. Vigorous but dry upper level troughs and surface frontal passages were accompanied by strong and gusty winds that managed to generate areas of dense blowing dust that contributed to PM-10 (coarse particle) exceedances on the 16th and the 30th at the West Forty Third site. A prolonged dry spell was still underway, and the "Alamo" wildfire that began near the Mexico border produced vast amounts of smoke that eventually impacted much of southern Arizona including the Valley. Local visibilities were reduced from the 21st thru the 24th during which time PM-2.5 (fine particle) levels rose into the mid to upper-moderate range of the Air Quality Index. Most remarkable, however, was the extremely dry air mass that arrived overhead on the 27th. At 4:00 p.m. that afternoon the relative humidity fell to a record-tying low of 2% and the temp/dew-point spread was 100 deg F (91 + -9)! -Reith

DETAILED OZONE SECTION

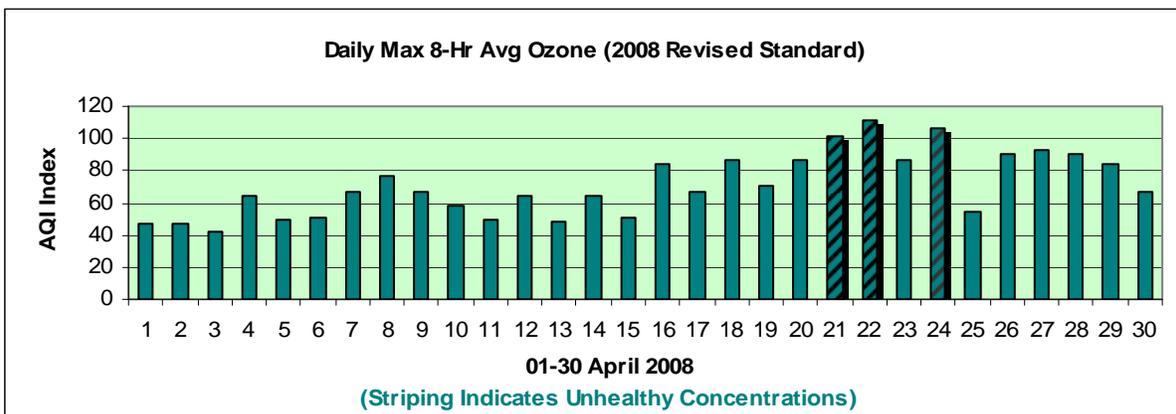
(Based on the 2008 EPA Revised 8-Hour Ozone Standard)

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

SUMMARY OF MAXIMUM 8-HR OZONE AQI VALUES FOR APRIL 2008*

*Preliminary data

SUN		MON		TUES		WED		THU		FRI		SAT	
				1	47	2	47	3	42	4	64	5	49
6	51	7	67	8	77	9	67	10	58	11	50	12	64
13	48	14	64	15	51	16	84	17	67	18	87	19	71
20	87	21	101	22	111	23	87	24	106	25	54	26	90
27	93	28	90	29	84	30	67						



<u>8-hr Ozone exceedance days in APR:</u>	Total= 3	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		4/21	76/101	Cave Creek
			76/101	Humbolt Mtn
			76/101	Tonto Nat'l Mon
		4/22	80/111	Cave Creek
			78/106	North Phoenix
			76/101	Humbolt Mtn
			76/101	Tonto Nat'l Mon
		4/24	78/106	Tonto Nat'l Mon

Total number of exceedance days since APR 01: 3
Total number of exceedance sites since APR 01: 8

<u>Ozone Health Watches in APR:</u> (Forecast max value 72-75 ppb)	Total= 3	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		4/22	80/111	Cave Creek
		4/23	71/87	Humbolt Mtn
		4/30	65/67	Cave Creek
			65/67	Humbolt Mtn

Ozone Health Watches since APR 01: Total= 3

High Pollution Advisories in APR: Total= 1 4/24 78/106 Tonto Nat'l Mon
(Forecast max value 76+ppb)

High Pollution Advisories since APR 01: Total= 1

Concentration Recap: Days in the **Good** category: 6
Days in the **Moderate** category: 21
Days in the **Unhealthy for Sensitive Groups** category: 3
Days in the **Unhealthy** category: 0
Total Forecast Days: 30

Maximum 8-Hr value: Date Hour Site ppb/AQI DOW
4/22 1100 Cave Creek 80/111 Tue

Maximum 1-Hr value: Date Hour Site ppb/AQI DOW
4/22 1500 Cave Creek 85/71 Tue

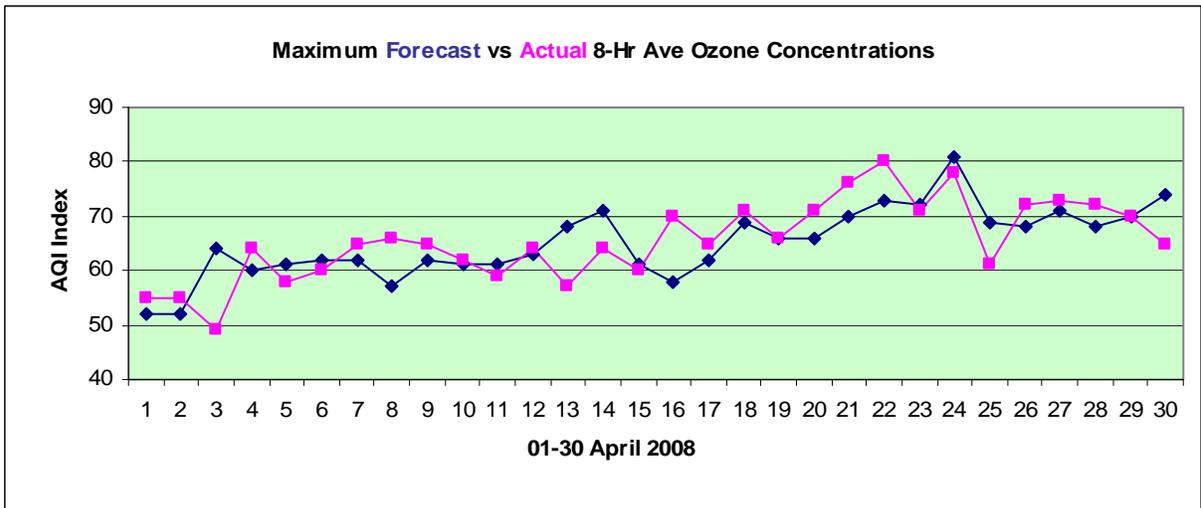
Average daily max 8-Hr concentration (ppb): 65.5
Deviation from the 1996-2007 average (ppb): -0.7

APR Climatology:
(Period 1996-2007
using 1997 85ppb
standard)

Average number of 8-Hr exceedance days: 0.3
 Maximum number of 8-Hr exceedance days: 1 in 1996, 1998-2000
 Minimum number of 8-Hr exceedance days: 0 in 1997, 2001-2007
 Average daily max 8-Hr concentration (ppb): 66.2
 Record high max 8-Hr concentration (ppb): 99 on the 29th, 1996
 Record low max 8-Hr concentration (ppb): 40 on the 14th, 2003

Forecast Verification:

of days maximum concentrations were over-forecast: 11
 # of days maximum concentrations were under-forecast: 17
 # of days maximum concentrations were correctly forecast: 2
 Apr average forecast accuracy (ppb): +/-4.5
 Apr average forecast bias (ppb): -0.3



Narrative:

On March 12, 2008, EPA significantly strengthened its national ambient air quality standards (NAAQS) for ground-level ozone, the primary component of smog. These changes will improve both public health protection and the protection of sensitive trees and plants. EPA is revising the 8-hour “primary” ozone standard, designed to protect public health, to a level of 0.075 parts per million (ppm). The previous standard, set in 1997, was 0.08 ppm. Because ozone is measured out to three decimal places, the standard effectively became 0.084 ppm as a result of rounding. The table below illustrates the current and revised 8-hr ozone AQI ranges for each health impact category and their breakpoint concentrations:

Category	AQI Value	1997 8-hour (ppm)	2008 8-hour (ppm)
Good	0-50	0.000-0.064	0.000-0.059
Moderate	51-100	0.065-0.084	0.060-0.075
Unhealthy for Sensitive Groups	101-150	0.085-0.104	0.076-0.095
Unhealthy	151-200	0.105-0.124	0.096-0.115
Very Unhealthy	201-300	0.125-0.374	0.116-0.374
Hazardous	301-400	No Change	No Change
	401-500	No Change	No Change

The “strengthening” of the federal 8-hour ground-level ozone health standard has and will undoubtedly continue to result in an increase in unhealthy ozone days in the Phoenix metro area, as well as the number of ozone health watches and high pollution advisories issued by forecasters. As can be seen by the above statistics, under the previous ozone standard there were only four 8-hr ozone exceedance days during the month of April from 1996 thru 2007 and none since 2000. During April 2008 under the new standard there were three exceedance days and another three within 4 parts per billion of the new standard. All of the exceedance days occurred under a “California Transport” regime – a local term used to describe a cyclonic (in most cases) 850-700mb (5K-10K’) wind field that has the capacity to deliver additional ozone and its precursors from central and southern California to Arizona – including the Phoenix metro area. This is principally an early-season phenomena that occurs in conjunction with flow associated with the passage of an upper level trough axis in the mid-latitude storm track. Local weather conditions under such circumstances tend to be breezy to windy with below average daytime temperatures – a situation not normally conducive to big increases in ozone levels. Nonetheless, a similar synoptic weather pattern has been linked to numerous high ozone episodes in the past that can only be explained by an influx of interstate ozone. Adding validity to this thought process are sudden ozone concentration jumps at upstream monitors at Yuma in Yuma County and at Alamo Lake in La Paz County. In fact, the Yuma site recorded the highest ozone readings of the entire network on the 19th, 20th, and 22nd and suffered exceedances on the both the 21st and 22nd. At any rate, the Valley ozone season is off to an inauspicious start. –Reith