

**MONTHLY AIR QUALITY REPORT FOR**  
**APRIL 2004**

**AOI COLOR SCALE**

<b>GOOD</b>  <b>0-50</b>	<b>MODERATE</b>  <b>51-100</b>	<b>UNHEALTHY FOR SENSITIVE GROUPS</b>  <b>101-150</b>	<b>UNHEALTHY</b>  <b>151-200</b>
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**Calendar of maximum AQI values & their corresponding color for April 2004\***

\*Preliminary data

**SAMPLE POLLUTANT REPORTING BOX**

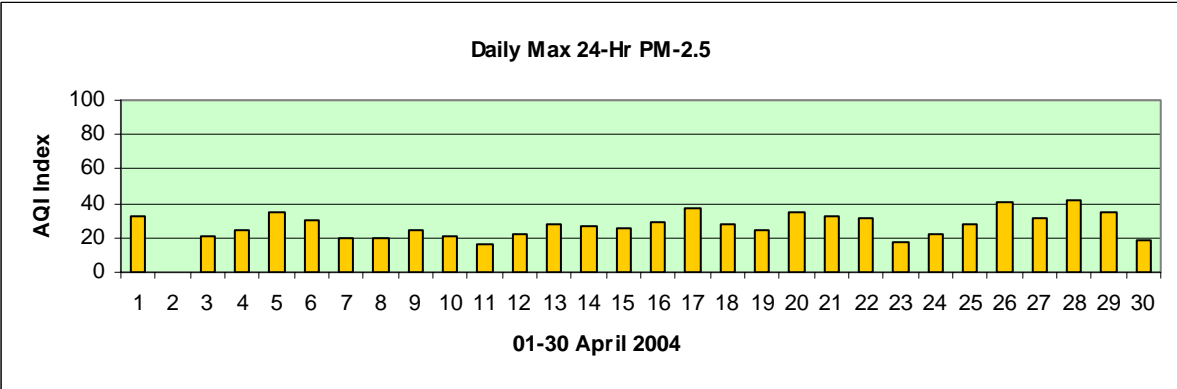
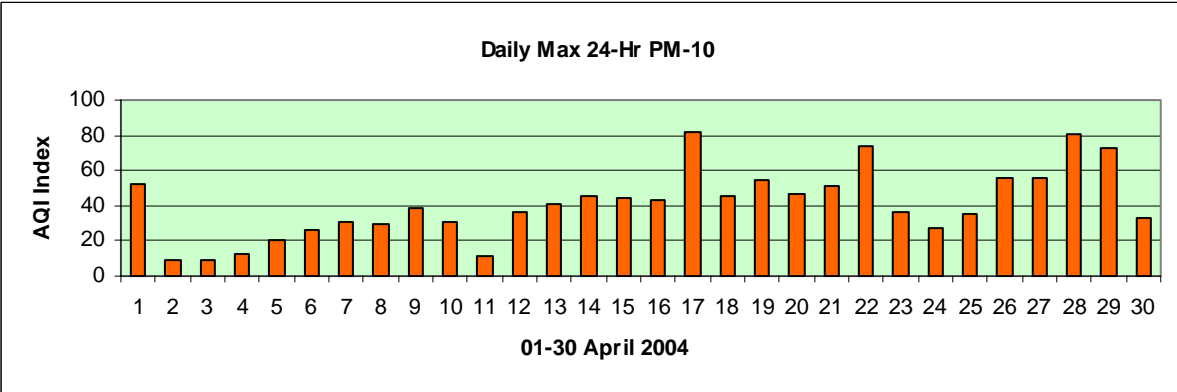
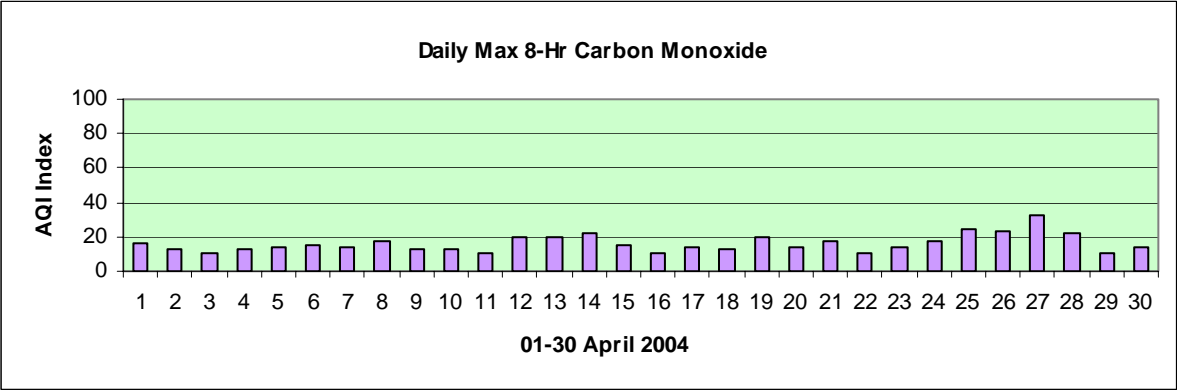
<b>1</b> <b>(day of month)</b>	<b>O3</b>	<b>CO</b>
	<b>PM10</b>	<b>PM2.5</b>

SUN			MON			TUES			WED			THU			FRI			SAT		
												1	41	16	2	41	13	3	44	10
													52	32		09	n/a		09	21
4	45	13	5	47	14	6	64	15	7	49	14	8	61	18	9	56	13	10	48	13
	13	25		21	35		26	30		31	20		30	20		39	25		31	21
11	45	11	12	48	20	13	64	20	14	74	22	15	51	15	16	46	10	17	42	14
	11	16		36	22		41	28		45	27		44	26		43	29		82	37
18	49	13	19	50	20	20	64	14	21	72	18	22	72	10	23	51	14	24	69	17
	45	28		54	25		47	35		51	32		74	31		36	17		27	22
25	77	24	26	66	23	27	77	33	28	95	22	29	69	10	30	54	14			
	35	28		56	41		56	31		81	42		73	35		33	19			

**Narrative:**

For the second straight month carbon monoxide and fine particles (PM-2.5) remained in the good range every day. Elevated concentrations of these two pollutants are most commonly associated with cold and stagnant air masses that occur during the winter months.

Rainfall during April was limited to the first few days of the month after which warm daytime temperatures and breezy conditions caused increasingly dry topsoil conditions. High coarse particle (PM-10) concentrations are a year-round phenomenon in the Phoenix area – mostly due to stagnant weather in the Fall and Winter and strong winds from passing storms in the Spring. This year was no exception with mid-latitude cyclone passages on the 1<sup>st</sup>, 10<sup>th</sup>, 17<sup>th</sup>, 22<sup>nd</sup>, and 28<sup>th</sup> that all brought gusty winds to Arizona in general and the forecast area in particular; each produced a locally high PM-10 signature. None of these wind events were accompanied by rainfall and significant cloud cover was absent during most. Particulate levels approached unhealthy levels on the 17<sup>th</sup> and 28<sup>th</sup> and a PM-10 Health Watch was issued for the 29<sup>th</sup>.



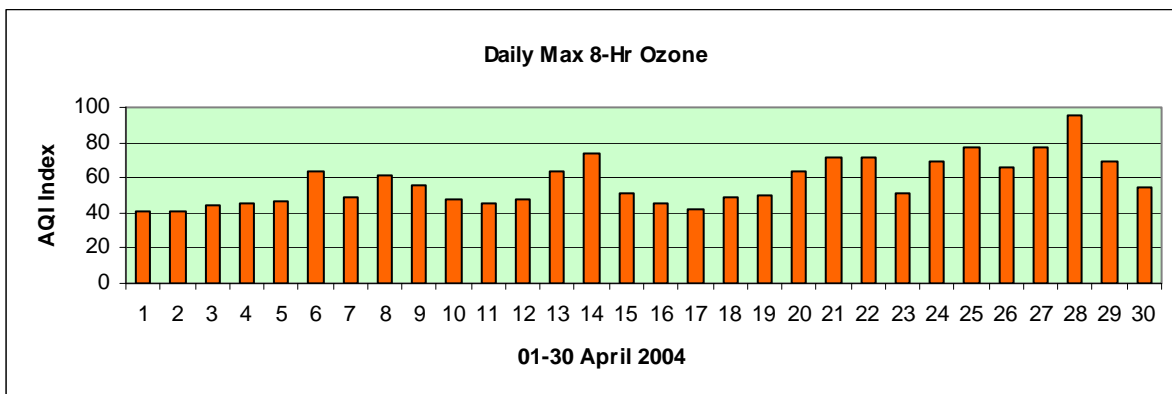
## DETAILED OZONE SECTION

<b>GOOD</b>	<b>MODERATE</b>	<b>UNHEALTHY FOR SENSITIVE GROUPS</b>	<b>UNHEALTHY</b>
<b>0-50</b>	<b>51-100</b>	<b>101-150</b>	<b>151-200</b>

### SUMMARY OF MAXIMUM 8-HR OZONE AQI VALUES FOR APRIL 2004\*

\*Preliminary data

SUN		MON		TUES		WED		THU		FRI		SAT	
								1	<b>41</b>	2	<b>41</b>	3	<b>44</b>
4	<b>45</b>	5	<b>47</b>	6	<b>64</b>	7	<b>49</b>	8	<b>61</b>	9	<b>56</b>	10	<b>48</b>
11	<b>45</b>	12	<b>48</b>	13	<b>64</b>	14	<b>74</b>	15	<b>51</b>	16	<b>46</b>	17	<b>42</b>
18	<b>49</b>	19	<b>50</b>	20	<b>64</b>	21	<b>72</b>	22	<b>72</b>	23	<b>51</b>	24	<b>69</b>
25	<b>77</b>	26	<b>66</b>	27	<b>77</b>	28	<b>95</b>	29	<b>69</b>	30	<b>54</b>		



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**Exceedance days in APR:** Total= 0      Date    Max ppb/AQI    Site/s

**Total number of exceedance days since APR 01:** 0

**Total number of exceedance sites since APR 01:** 0

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**Ozone Health Watches in APR:** Total= 2      Date    Max ppb/AQI    Site/s  
(Forecast max value 80-84 ppb)  
4/26      71/66      Palo Verde  
4/27      75/77      Humboldt

**Ozone Health Watches since APR 01:** Total= 2

**High Pollution Advisories in APR:** Total= 0  
(Forecast max value 85+ppb)

**High Pollution Advisories since APR 01:** Total= 0

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**Concentration Recap:** Days in the **Good** category: 13  
Days in the **Moderate** category: 17  
Days in the **Unhealthy for Sensitive Groups** category: 0  
Days in the **Unhealthy** category: 0  
Total Forecast Days: 30

**Maximum 8-Hr value:**    Date    Hour    Site    ppb/AQI DOW  
4/28    1600    Hillside    82/95    Wed

**Maximum 1-Hr value:**    Date    Hour    Site    ppb/AQI DOW  
4/28    2000    Hillside    85/71    Wed

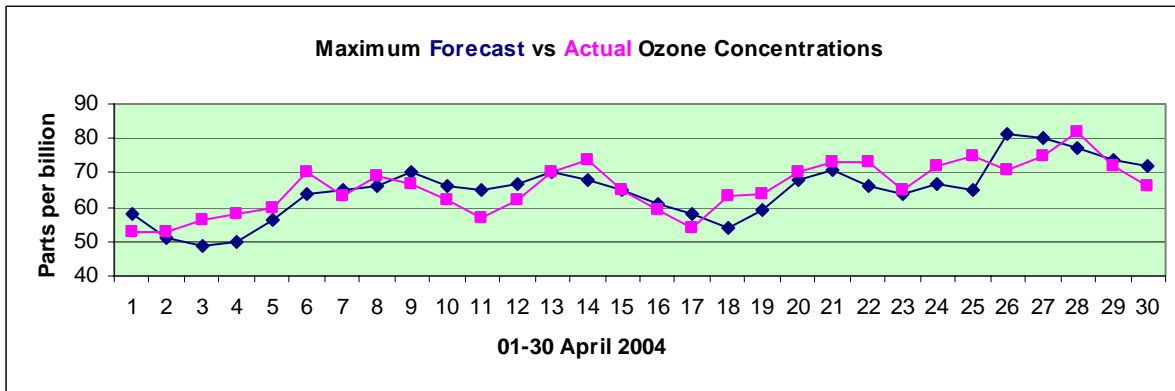
Average daily max 8-Hr concentration (ppb): 65.8  
Deviation from 1996-2003 average (ppb): -1.0

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**APR Climatology:**      Average number of 8-Hr exceedances: 0.5  
(1996-2003)      Maximum number of 8-Hr exceedances: 1 in 1996/98/99/2000  
Minimum number of 8-Hr exceedances: 0 in 1997, 2001/02/03  
Average daily max 8-Hr concentration (ppb): 66.8  
Record high max 8-Hr concentration (ppb): 99 on the 29th, 1996  
Record low max 8-Hr concentration (ppb): 40 on the 14th, 2003

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<b>Forecast Verification:</b>	Days maximum concentrations were over-forecast:	12
	Days maximum concentrations were under-forecast:	16
	Days maximum concentrations were correctly forecast:	2
	April average forecast accuracy (ppb):	4.6
	April average forecast bias (ppb):	-0.9



**Narrative:**

This month officially began the 2004 ozone season and was fairly typical in several aspects. First, the maximum daily average ozone concentration was a mere one part per billion under the eight-year climatology for the month of April. Second, no exceedances of the federal health standard were recorded, an event that takes place about one year in two. Third, several episodes of ozone and ozone precursor import from California occurred. Observed numerous times in the past, the passage of an upper level trough or surface cold front often brings a wind shift from a west or northwesterly direction, followed by a surge in local ozone concentrations – despite the frequently strong winds that accompany them.

Three such episodes were identified this month: from the 5th thru the 9th, the 18th thru the 22nd, and the 27th thru the 29th. During the first episode the measured impact was greatest at Yuma, where the highest 8-hr ozone concentrations in the monitoring network were recorded on the 5th, 8th, and 10th. During the third episode the Hillside site, located northwest of Phoenix, had the overall highest 8-hr ozone reading of the entire month on the 28th. In all three instances ozone concentrations also rose in the Phoenix area.

Another synoptic weather pattern that frequently is accompanied by high levels of ozone is the “return flow” situation, during which an easterly wind component thru a deep layer of the atmosphere begins. This component is opposite that of the customary southwesterly valley wind that develops over the valley during the afternoon hours. The result is often near-calm conditions during the period of peak heating and ozone production. This situation did occur on the 26th and 27th and Ozone Health Watches were issued for each. The actual easterly winds were much stronger and pervasive than forecast and the resulting constant transport kept maximum ozone levels from reaching their potential. -Reith