

# **MONTHLY 8-HR OZONE FORECAST PROGRAM REPORT FOR JULY 2003**

## AQI COLOR SCALE (ppb)

<b>GOOD</b>  0-64	<b>MODERATE</b>  65-84	<b>UNHEALTHY FOR SENSITIVE GROUPS</b>  85-104	<b>UNHEALTHY</b>  105-124
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## Calendar of maximum 8-Hr ozone values for July 2003 (ppb)

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 <b>66</b>	2 <b>70</b>	3 <b>75</b>	4 <b>73</b>	5 <b>78</b>
6 <b>72</b>	7 <b>73</b>	8 <b>75</b>	9 <b>79</b>	10 <b>88</b>	11 <b>73</b>	12 <b>67</b>
13 <b>68</b>	14 <b>82</b>	15 <b>76</b>	16 <b>86</b>	17 <b>56</b>	18 <b>69</b>	19 <b>78</b>
20 <b>71</b>	21 <b>95</b>	22 <b>103</b>	23 <b>91</b>	24 <b>87</b>	25 <b>80</b>	26 <b>76</b>
27 <b>75</b>	28 <b>71</b>	29 <b>82</b>	30 <b>87</b>	31 <b>80</b>		

<u>Exceedance days in July-</u>	<u>Total= 7</u>	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
		7/10	88/109	Tonto Natl Mon
		7/16	86/104	North Phoenix
		7/21	95/127	Tonto Natl Mon
			90/114	Queen Valley
			88/109	Blue Point
			85/101	Rio Verde
		7/22	103/147	Blue Point
			99/137	Falcon Field
			99/137	Fountain Hills
			96/129	Rio Verde
			96/129	Scottsdale
			94/124	Queen Valley
			93/122	North Phoenix
			93/122	Pinnacle Peak
			90/114	A. Junction
			86/104	Tempe
		7/23	91/116	Queen Valley
			87/106	Blue Point
		7/24	87/106	Queen Valley
		7/30	87/106	Humboldt

**Total number of exceedance days since April 1: 11**  
**Total number of exceedance sites since April 1: 33**

**Health Watches issued in July:**  
(forecast max value 80-84 ppb)

<b>Total=</b>	<b>14</b>	<b><u>Date</u></b>	<b><u>Max ppb/AQI</u></b>	<b><u>Site/s</u></b>
		7/01	66/54	Blue Point
		7/02	70/64	Tonto Natl Mon
		7/03	75/77	Tonto Natl Mon
		7/07	73/72	Pinnacle Peak
		7/08	75/77	Tonto Natl Mon
		7/09	79/87	Tonto Natl Mon
		7/10	88/109	Tonto Natl Mon
		7/11	73/72	Queen Valley
		7/14	82/95	Blue Point
		7/15	76/79	Blue Point
		7/25	80/90	Rio Verde
		7/26	76/79	Queen Valley
		7/27	75/77	Scottsdale
				Tempe
		7/30	87/106	Humboldt

**Health Watches issued since April 1:** Total= 24

**Health Warnings issued in July:**  
(forecast max value 85+ppb)

<b>Total=</b>	<b>6</b>	<b><u>Date</u></b>	<b><u>Max ppb/AQI</u></b>	<b><u>Site/s</u></b>
		7/12	67/56	Queen Valley
		7/13	68/59	Blue Point
		7/16	86/104	North Phoenix
		7/23	91/116	Queen Valley
		7/24	87/106	Queen Valley
		7/31	80/90	Blue Point

**Health Warnings issued since April 1:** Total= 11

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<b><u>Concentration Recap:</u></b>	<b>Days in the Good category:</b>	<b>1</b>
	<b>Days in the Moderate category:</b>	<b>23</b>
	<b>Days in the Unhealthy for Sensitive Groups category:</b>	<b>7</b>
	<b>Days in the Unhealthy category:</b>	<b>0</b>
	<b>Total Forecast Days:</b>	<b>31</b>

<b>Maximum 8-Hr value:</b>	<b><u>Date</u></b>	<b><u>Hour</u></b>	<b><u>Site</u></b>	<b><u>ppb/AQI DOW</u></b>
	7/22	1300	Blue Point	103/147 Tue

<b>Maximum 1-Hr value:</b>	<b><u>Date</u></b>	<b><u>Hour</u></b>	<b><u>Site</u></b>	<b><u>ppb/AQI DOW</u></b>
	7/22	1800	Blue Point	122/100 Tue

<b>Average daily max 8-Hr concentration (ppb):</b>	<b>77.5</b>
<b>Deviation from 1996-2002 average (ppb):</b>	<b>+6.3</b>

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**July Climatology:**  
(1996-2002)

<b>Average number of 8-Hr exceedances:</b>	<b>4</b>
<b>Maximum number of 8-Hr exceedances:</b>	<b>10 in 1996</b>
<b>Minimum number of 8-Hr exceedances:</b>	<b>0 in 1997, 1999</b>
<b>Average daily max 8-Hr concentration (ppb):</b>	<b>71.2</b>
<b>Record high max 8-Hr concentration (ppb):</b>	<b>107 on the 9th, 2002</b>
<b>Record low max 8-Hr concentration (ppb):</b>	<b>40 on the 29th, 1997</b>

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<b>Forecast Verification:</b>	<b>Days maximum concentration was over-forecast:</b>	<b>20</b>
	<b>Days maximum concentration was under-forecast:</b>	<b>9</b>
	<b>July forecast accuracy (ppb):</b>	<b>7.9</b>
	<b>July forecast bias (ppb):</b>	<b>+2.5</b>

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**Narrative:** Discomfort was in abundance during July 2003 due to forest fire smoke, record high maximum and minimum temperatures, below normal rainfall, dust storms, and... ground-level ozone.

The weather during the first week or so of the month was a carryover from June in that the subtropical high remained mainly south of Arizona with westerly winds aloft and at the surface providing good ozone dispersion each afternoon. On the 10<sup>th</sup> the high moved over northern Arizona and just enough clockwise easterly flow around its center occurred over the east portion of the forecast area to result in unhealthy ozone concentrations at Tonto National Monument. On the 16<sup>th</sup> winds aloft shifted out of the east in advance of a circulation center, formerly known as T.S. Claudette, as it moved toward the area from Texas. Less dispersion resulted in a marked increase in ozone at most locations, reaching unhealthy levels at the North Phoenix site. The next day ozone concentrations dropped back to the good range – the only day of the month so monitored – as clouds and winds associated with the system moved overhead. A four-day long episode of unhealthy ozone began on the 21<sup>st</sup> and lasted through the 24<sup>th</sup>. During this period 17 site exceedances were recorded – 10 on the 22<sup>nd</sup> alone. The 1-hr ozone standard of 125 parts per billion was nearly reached on this day as well. This was due to the simultaneous onset of the workweek vehicular/workplace emissions and the summer monsoon circulation pattern. The emissions provided the raw material for ozone production and the deep easterly wind regime minimized afternoon wind speeds and dispersion. Low-level moisture was also quite high. Ozone readings were generally elevated each day the rest of the month, including an unhealthy maximum concentration at Humboldt on the 30<sup>th</sup>.

–Reith

