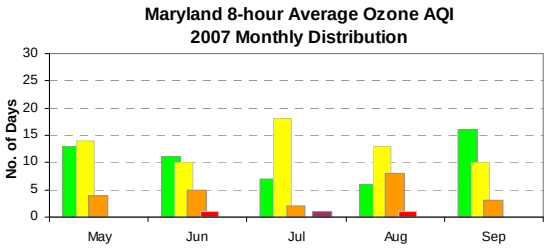
GROUND-LEVEL OZONE

2007 May – September

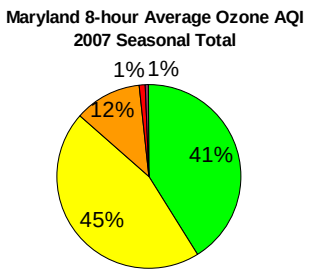
The official ozone season spans from May 1 - September 30. This is due to an increase in ozone production that occurs during the summer months, making it the primary pollutant for the region. Ozone activity can be measured by the number of days the 8-hour average ozone National Ambient Air Quality Standard (NAAQS) is exceeded. This standard is exceeded when the daily maximum 8-hour average ozone Air Quality Index[1] (AQI, see color bar below) reaches beyond 100, at which point it is declared an exceedance day.

Air quality during the season of May - September 2007 proved to be slightly more active than average. When comparing the average ozone season of 2002-2006, the 2007 seasonal total of NAAQS exceedance days was 25[2] compared with an average 22 exceedance days. This can be seen in the chart, "Seasonal Comparison of Exceedance Days" (pg. 2). Also, good and bad air quality conditions in the Baltimore City area are shown in the Haze Cam images located to the right. Baltimore City is about 10 miles away from the camera location and clearly visible on August 18th. In contrast, the city is difficult to locate on July 9th due to more air pollution that resulted in low visibility and the occurrence of an exceedance day.



SEASONAL HIGHLIGHTS

During the 2007 ozone season, the number of ozone exceedance days totaled 25 days. The pie chart indicates the percent occurrence of each AQI category across the season. The categories of Good and Moderate represented the majority of the season with a combined total of 86%. AQI categories for exceedance days were 12% Unhealthy for Sensitive Groups (USG), 1% Unhealthy, and 1% Very Unhealthy.



The season began with its first exceedance day occurring on May 25th. In May, there were 13 Good, 14 Moderate, and four USG days observed, as shown in the bar chart of AQI monthly distribution above. In June, the number of exceedance days increased to six with the first Unhealthy day occurring on June 8th.The table "Maryland's 2007 Ozone Season Exceedance Days" (pg. 2) lists each day an AQI of USG or greater occurred. June 8th measured a daily maximum 8-hour average AQI of 159 at the Aldino air monitoring site. Above the table, a map of Maryland shows the state's network of ozone air monitoring sites. Also, note that five monitors observed USG AQI or greater on this day, including Aldino.

The month of July had somewhat fewer exceedance days with three total. Also, the number of Moderate days, a lower AQI category, increased substantially. Although overall air quality conditions appeared to be slightly better, the worst air quality day of the season occurred on July 9th with an AQI of Very Unhealthy. This event *(continued on pg. 2)*

Air Quality Index (AQI)

0-50 Good	51-100 Moderate	101-150 USG	151-200 Unhealthy	201-300 Very Unhealthy	301-500 Hazardous

[1] AQI based on the 1997 8-hr ozone NAAQS
[2] Report based on official ozone data

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GROUND-LEVEL OZONE

2007 May – September

SEASONAL HIGHLIGHTS

(continued from pg. 1) was widespread across Maryland with seven monitors exceeding an AQI 100. August brought the most exceedance days with nine in 2007. All exceedance days were within the USG AQI range except August 4th which reached Unhealthy levels. In September, the ozone season wound down as a majority of the days had an AQI of Good with only three exceedance days, all no higher than USG.

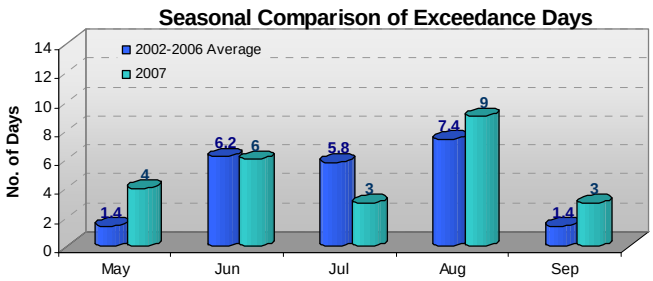
Maryland's 2007 Ozone Season Exceedance Days

Date	No. of Monitors	Monitor with Highest AQI	8-hour Average Ozone AQI
25-May	1	Fairhill	119
26-May	2	PG Equestrian Center	116
30-May	5	Aldino	140
31-May	5	Fairhill	116
1-Jun	1	Fairhill	101
8-Jun	5	Aldino	159
18-Jun	7	Davidsonville	147
19-Jun	1	South Carroll	119
26-Jun	2	Rockville / South Carroll	116
27-Jun	1	Aldino	119
8-Jul	1	Edgewood	116
9-Jul	7	Fairhill	201
17-Jul	4	Davidsonville	116
2-Aug	5	Rockville	147
4-Aug	5	Davidsonville	185
6-Aug	1	Edgewood	101
7-Aug	1	HU-Beltsville	111
12-Aug	1	Edgewood	106
15-Aug	4	Fairhill	119
17-Aug	1	Millington	101
25-Aug	1	Rockville	109
30-Aug	2	Edgewood	104
5-Sep	2	Rockville	111
7-Sep	1	South Carroll	101
25-Sep	2	South Carroll	106

WEATHER & AIR QUALITY

The U.S. experienced varied temperature and precipitation conditions during the 2007 ozone season when compared with the climatological average of 1950-2007. Maps of the U.S. (pg. 3) are anomalies of temperature and precipitation trends from May - September 2007 measured against the long-term average. Across the U.S., average temperatures were about 2°F more than usual, especially within the Rocky Mountains. New England and areas within Florida had temperatures that were close to the climatological mean. Texas and its surrounding states as well as northern New Hampshire were the only regions that experienced below normal temperatures within the season. Precipitation conditions were generally average in the West. The central U.S. showed above average precipitation occurring within from the Southern Plains to the western Midwest. Below average precipitation occurred across the Southeast and Mid-Atlantic states.

Within Maryland, the seasonal weather conditions were somewhat similar to the climatological mean. However, some variations were found when examining mean conditions for each month. Monthly averages of temperature and precipitation trends indicate that *(continued on pg. 3)*



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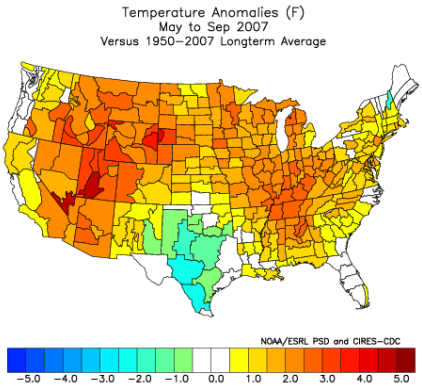
GROUND-LEVEL OZONE

2007 May – September

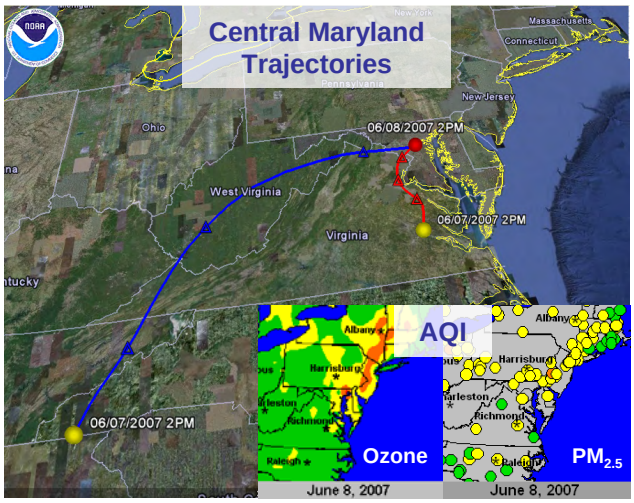
WEATHER & AIR QUALITY

(continued from pg. 2) during late spring and early summer season, the state experienced above normal temperatures and below normal precipitation. Because ozone production requires sunny skies and warm temperatures, the presence of these conditions resulted in high ozone AQI values. The bar chart, "Seasonal Comparison of Exceedance Days" (pg. 2) illustrates this trend by comparing the number of ozone exceedance days during the 2007 ozone season to the five-year average (2002-2006). During the summer, especially in August, most of the eastern U.S. was experiencing drought conditions allowing the ozone AQI to climb further. Although Maryland was not strongly affected by this drought, the Southeast region was hard hit. This region can influence Maryland's air quality by transporting ozone and its precursors into our region. As the fall season approached, temperatures remained slightly above normal with below normal precipitation. As a result, September had three exceedance days, about twice as many than the previous five-year average.



FEATURED EVENT: June 8, 2007

The air pollution episode began with the classic setup of a high pressure system located off the coast of the Mid-Atlantic. This induced light winds at the surface, as shown by the red 24-hour back trajectory in the image to the right (initiated at 10 m above ground level, or AGL). Relatively stagnant air allowed for the accumulation of local ozone precursors and ozone. Southwesterly winds aloft illustrated by the blue trajectory (500 m AGL), supported long range transport of ozone and its precursors from the previous day. The trajectories' points of origin are color-coded based on the daily maximum AQI reached on June 7th. In addition, there were sunny skies and surface temperatures reaching into the high 80's (°F) and low 90's range.



These conditions led to daily maximum 8-hour ozone AQI rising as high as Unhealthy on June 8th. In addition, $PM_{2.5}$ AQI also increased up to the Moderate range. AQI maps displayed the extent of this episode reaching from the Mid-Atlantic up the coast to New England. The event ended when a squall line of thunderstorms ahead of a cold front swept through the region that evening, cleaning out the air.

MORE INFORMATION

Visit www.cleanairpartners.net for current air quality conditions and forecasts, or call the air quality hotline at 410-537-3247.

References: *AIRNow*, *NOAA ARL READY HYSPLIT Trajectory Model*, *NOAA ESRL PSD Climate Analysis Branch*

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