

Air Quality Facts

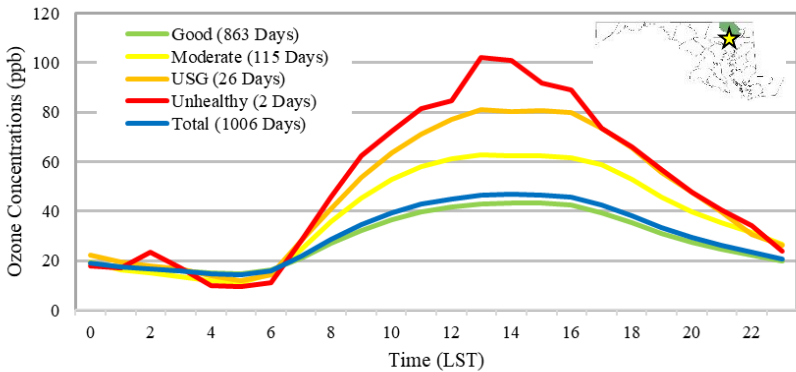
OZONE – DIURNAL CLIMATOLOGY

WHEN IS OZONE THE WORST DURING THE DAY?

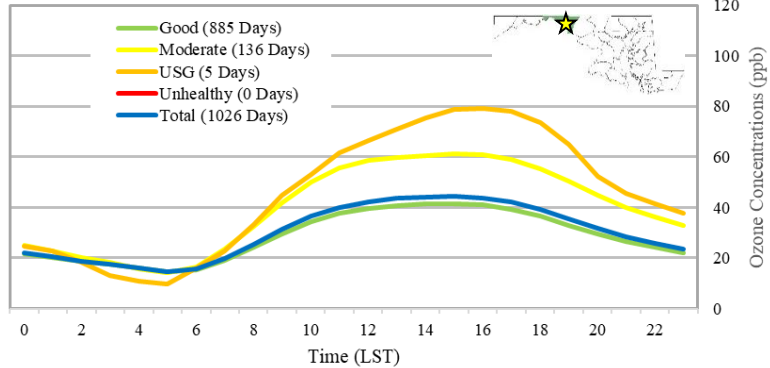
In Maryland, ground-level ozone pollution has a strong diurnal pattern with the lowest concentrations exhibited before sunrise and highest concentrations occurring between noon and early evening (12 pm – 5 pm). Before sunrise, ozone concentrations are low for two main reasons: (a) a nighttime (nocturnal) temperature inversion prevents mixing of polluted air from aloft down to the surface; and (b) destruction of ozone through contact with surfaces and “ozone scavenging” from reactions with Nitric Oxide (NO). At sunrise, the presence of sunlight allows Oxides of Nitrogen (NO_x) and Volatile Organic Compounds (VOCs) to chemically react to form ozone. Around 9 am, surface heating allows the temperature inversion to break. Air aloft, which has ozone and ozone precursors (originating primarily from out of State), mixes down to the ground. In the afternoon, local effects such as emissions and micro-meteorology (e.g., Bay/Sea Breeze), continue to contribute to the ozone concentrations observed at ground level. The combination of locally produced and transported ozone reach a peak between noon and early evening. After sunset, ozone destruction occurs at the surface and persists through the night. The ozone on bad air days can persist through the late evening hours depending on how high the ozone concentration is and the rate of ozone destruction after sunset. In addition, the severity of ozone pollution is different at rural, suburban, and urban centers. To learn more about these differences across the State, check out the Air Quality Facts on “Ozone – Extent of the Ozone Pollution Plume.”

Hourly Averaged Ozone Concentrations, Edgewood and Hagerstown Monitors

Edgewood (May-October, 2016-2021)



Hagerstown (May-October, 2016-2021)



Peak Hourly AQI: 45
Max 8-hr AQI: 42

Downtown Baltimore
~10 miles away



July 24th 2019

Baltimore

Peak Hourly AQI: 39
Max 8-hr AQI: 37

July 14th 2020

Frostburg

Peak Hourly AQI: 154
Max 8-hr AQI: 112

July 16th 2019

Baltimore

Peak Hourly AQI: 100
Max 8-hr AQI: 87

July 28th 2021

Frostburg

During the summer, hazy conditions are a result of particle pollution, but they often occur in conjunction with an ozone pollution event. A look outside can tell you a lot about the state of air quality! Pick a vista with objects known to be at least 7 miles away and see whether they are visible. The rule of thumb is the better the visibility, the better the air quality. If the vista is less clear or obscured by haze, then the outside air is likely to be polluted. Protect your health by knowing the current air quality conditions and forecasts: see [MDE's air quality forecast](#) or visit [Airnow](#).

Air Quality Index (AQI)

0-50
Good

51-100
Moderate

101-150
USG*

151-200
Unhealthy

201-300
Very Unhealthy

301-500
Hazardous

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