

National Air Quality Forecast Capacity FAQ

COMMENT/QUESTION: I like the ozone map now available, but can't really use it. There is no "guidance" given on the explanatory page as to what is considered a high range and low range. Where can we get information on what are safe levels and what are not?

RESPONSE PROVIDED BY:

Chet Wayland, Director
 Air Quality Assessment Division
 EPA's Office of Air Quality Planning and Standards

The ozone maps available as air quality forecasting guidance products represent concentrations of forecasted ground-level ozone. The guidance is used by state and local air quality forecasters to assist them in issuing Air Quality Index (AQI) forecasts. The AQI links air quality-- in this case, for ozone concentrations-- to health effects and cautionary language or interpretive guidance for individuals.

When ozone is the only pollutant affecting air quality, the risks to people's health can be described from both short-term exposure to ozone (based on 1-hr averaged concentrations) and longer-term exposure to ozone (based on 8-hr average concentrations). EPA developed the following scale that relates shorter and longer-term exposure to the ambient ozone concentrations, in parts per billion (ppb), to health risk.



Air Quality Index for Ozone

| Index Values (Conc. Range) | Air Quality Descriptors | Cautionary Statements for Ozone |
|-------------------------------|--------------------------------|---|
| 0 – 50 (0-59 ppb) | Good | No health impacts are expected when air quality is in this range. |
| 51 – 100 (60-75 ppb) | Moderate | Unusually sensitive people should consider limiting prolonged outdoor exertion |
| 101 – 150 (76-95 ppb) | Unhealthy for Sensitive Groups | Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion |
| 151 – 200 (96-115 ppb) | Unhealthy | Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children should limit prolonged outdoor exertion. |
| 201 – 300 (116-374 ppb) | Very Unhealthy | Active children and adults, and people with respiratory disease, such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion. |

- Information on local AQI forecasts and current AQI levels can be found at <http://www.epa.gov/airnow/where/>.
- Access to the air quality model guidance in AQI format can be found at <http://www.airnow.gov/>.
- Finally, specific information on the AQI can be found at <http://www.epa.gov/airnow/aqi.html>.

COMMENT/QUESTION: I found this service surfing around your website. Could someone please explain how the air quality in NYC could be so much better than the rest of the Northeast?

RESPONSE PROVIDED BY:

Ken Schere, Senior Science Advisor
Atmospheric Modeling and Analysis Division
EPA's National Exposure Research Laboratory

By looking at ozone, it may seem as though the air quality is better in the middle of NYC than elsewhere around it. This is misleading though. Ozone is produced through a complex set of chemical reactions in the atmosphere. It needs the starting ingredients of nitrogen dioxide and hydrocarbons to make the reactions happen. These gases are emitted in copious amounts from urban areas, such as NYC. One usually finds higher ozone in a downwind direction from the urban area, since it takes a few hours for the chemical reactions to occur and form higher ozone concentrations. So the pollutant gases emitted within NYC may cause higher ozone to form a few hours downwind, such as in southern CT or Long Island . However, if the winds are calm, the ozone-forming reactions will occur closer to the urban source areas and cause ozone buildup in the urban cores.

A complicating factor is that one of the precursor gases emitted in urban areas, nitrogen oxide, also depletes ozone. The effect is most dramatic in the evening and overnight hours when there is little or no sunlight. The net effect of these chemical and transport processes often causes the ozone concentrations within the core of large urban areas to be lower than the surrounding areas. However the air is not "cleaner" here even if the ozone concentrations are lower. The urban core is bathed in the ozone precursor gases, which themselves can be irritating or in some cases, toxic. A host of other pollutants, including fine particles, are also released in the urban areas. And under conditions of light winds and stagnation, ozone too can build up within the urban cores.

COMMENT/QUESTION: I would like to acquire NOAA's historical air quality forecast guidance. How can I get archived forecast products?

RESPONSE PROVIDED BY:

Paula Davidson
NWS Manager, Air Quality Forecast Capability
Office of Science and Technology
National Weather Service

Operational and experimental air quality forecast guidance is archived by the National Climatic Data Center (NCDC) in Asheville, NC. The guidance is archived in a binary format called GRIB2. A tool to decode the archived binary products can be found at http://www.weather.govmdl/NDFD_grib2Decoder/. If you would like to request archived air quality forecast guidance, please contact NCDC's Mr. Alan Hall at alan.hall@noaa.gov.