

# All About Air Quality

**What is air quality?** Earth's atmosphere is mostly made up of two gases: nitrogen and oxygen. Air also contains small amounts of many other gases and particles. Air quality is a measure of how clean or polluted the air is by common air pollutants. Monitoring air quality is important because polluted air is bad for human health and the environment.

Air quality is communicated using the **Air Quality Index (AQI)**. The AQI has six categories that communicate the level of health concern using specific colors.

Air Quality Index Levels of Health Concern	Numerical value	Meaning
Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Hazardous	301 and Higher	Health warning of emergency conditions: everyone is more likely to be affected.

**AQI** tracks five major air pollutants:

- Ground-level ozone
- Particle pollution
- Carbon monoxide
- Sulfur dioxide
- Nitrogen dioxide

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## Ground-Level Ozone?

Ozone is a gas you've probably heard of as a protective layer high up in Earth's atmosphere. This ozone layer is a good thing — it helps block harmful ultraviolet radiation from the Sun. But ground-level ozone is bad for human health. Pollutants react in sunlight to make ozone. These come from natural and man-made sources, including cars, power plants, and wildfires.

**Particle pollution**, also called particulate matter, is a mix of solid particles and liquid droplets suspended in the air. Fine particles are so small that when inhaled, they can have harmful health effects. Fine particles also reduce visibility, which can be a problem for airplanes and people visiting national parks.

Particle pollution is released from many sources, like construction sites, smokestacks, wildfires, or volcanoes. But most particle pollution is created in the atmosphere from chemical reactions with other pollutants such as sulfur dioxide and nitrogen dioxide.

**Ground-level ozone and particle pollution are the two air pollutants that pose the greatest threat to human health.**

Instruments on the ground and satellites orbiting Earth measure air quality conditions. NOAA's Geostationary Operational Environmental Satellites-R (GOES-R) Series satellites track particle pollution in the US using the Advanced Baseline Imager (ABI) instrument every five to ten minutes during daytime.



Find out more about air quality at <https://scijinks.gov/air-quality/>

**NOAA**