

Air Quality System (AQS)

(Used for Indicators E1, E2, and E3)

Brief description of the data set	The U.S. Environmental Protection Agency compiles air quality monitoring data in the Air Quality System (AQS). Ambient air concentrations are measured at a national network of more than 4,000 monitoring stations and are reported by state, local, and tribal agencies to EPA AQS.
Who provides the data set?	U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards.
How are the data gathered?	Concentrations are measured at a national network of more than 4,000 monitoring stations and are reported by state, local, and tribal agencies to EPA AQS.
What documentation is available describing data collection procedures?	The Ambient Monitoring Technology Information Center (AMTIC) at http://www.epa.gov/ttn/amtic/ contains information and files on ambient air quality monitoring programs, details on monitoring methods, relevant documents and articles, information on air quality trends and federal regulations related to ambient air quality monitoring. The Air Trends site at http://www.epa.gov/airtrends contains information on air quality trends. The Green Book site at http://www.epa.gov/air/oaqps/greenbk contains information on nonattainment areas.
What types of data relevant for children’s environmental health indicators are available from this database?	Relevant data include measured ambient air pollutant concentrations (lead, carbon monoxide, ozone, PM ₁₀ , PM _{2.5} , sulfur dioxide, and nitrogen dioxide), Air Quality Index, and monitor information (location, monitoring objective).
What is the spatial representation of the database (national or other)?	National. However, not all counties are represented since not all counties have air pollution monitors.
Are raw data (individual measurements or survey responses) available?	Individual hourly or daily measurements by monitor and pollutant are available.
How are database files obtained?	Raw data: http://www.epa.gov/ttn/airs/aqsdatamart/basic_info.htm . http://www.epa.gov/ttn/airs/airsaqs/detaildata/downloadaqdata.htm . Annual summary data (includes annual means and maxima): http://www.epa.gov/ttn/airs/aqsdatamart/ . For some indicators additional annual summary data were compiled by EPA staff. This includes annual maximum rolling three-month average lead concentrations, county maximum PM _{2.5} annual means using OAQPS data completeness and weighted average calculations, PM _{2.5} exceedance count data, and air quality index data.
Are there any known data quality or data analysis concerns?	Individual measurements of questionable validity or attributed to exceptional events (e.g., forest fires) are flagged. Monitoring data are not collected in some counties for some pollutants.
What documentation is available describing quality assurance procedures?	http://www.epa.gov/ttn/amtic/quality.html . http://www.epa.gov/airprog/oar/oaqps/qa/index.html .

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For what years are data available?	1970–present. AQS contains some monitoring data from the late 1950s and early 1960s, but there is not an appreciable amount of data for lead until 1970, sulfur dioxide until 1971, nitrogen dioxide until 1974, carbon monoxide and ozone until 1975, and PM ₁₀ until 1987. AQS also contains monitoring data for PM _{2.5} beginning with 1999; PM _{2.5} was measured only infrequently prior to 1999.
What is the frequency of data collection?	Hourly or daily. Less frequent monitoring occurs at some monitors (e.g., every three or six days for PM or only in the ozone season for ozone).
What is the frequency of data release?	AIRNow releases ozone and PM2.5 data hourly. Raw data are updated by states approximately monthly. Annual summary data are updated quarterly.
Are the data comparable across time and space?	Counties without air quality monitors cannot be compared with counties with air quality monitors, and some counties are monitored more extensively than others. Although monitor locations and monitoring frequencies change, the network is reasonably stable. An exception occurred for PM _{2.5} in 1999 as the new monitoring network was built up.
Can the data be stratified by race/ethnicity, income, and location (region, state, county or other geographic unit)?	The data can be stratified by region, state, county, and metropolitan area.