Cleveland Multiple Air Pollutant Study (CMAPS)

What is CMAPS?

The Cleveland Multiple Air Pollutant Study (CMAPS) is an air pollution research study deploying state-of-the-science measurement and modeling tools to investigate sources of air pollution in Cleveland, Ohio, and the distribution of the pollutants across the metropolitan area. CMAPS also will provide data to evaluate the relationship between air pollution sources, air pollution exposures, and potential health impacts.

Why is EPA conducting CMAPS?

Air quality in the city of Cleveland is impacted by numerous local and regional air pollutant sources. Additionally, Cleveland has two air monitoring sites that exceed current national air quality standards for particulate matter. CMAPS will provide important information to EPA and state and local air quality managers regarding the relative contributions that various sources make to Cleveland's air pollutant concentrations.

Who is involved in CMAPS?

EPA scientists are partnering with local air quality and public health professionals to conduct CMAPS. Local partners include the Cleveland Department of Public Health's Division of Air Quality, Akron Regional Air Quality Management District, and Ohio EPA.

How will the air pollution measurements be conducted?

CMAPS will include a year-long air pollution measurement period and two shorter air pollution measurement periods. The focus of the year-long effort will be to collect data on particulate matter and mercury necessary for advanced air quality modeling.

The two shorter measurement periods will be one month in duration and will deploy monitoring equipment to measure pollutants, including particulate matter, ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, mercury, black carbon (soot), and ammonia. These continuous measurements of key air pollutants will provide researchers with detailed information about how pollutant concentrations vary with time. The shorter measurement periods will include the use of new passive monitoring methods that do not require electrical power, allowing them, easily, to be placed at numerous locations across the study area. These methods will provide information about how air pollutant concentrations vary across Cleveland and surrounding areas. In addition to pollutant measurements, meteorological measurements, including temperature, wind speed and direction, and rainfall will be conducted during the shorter measurement periods.

Where will the air pollution measurements be conducted?

CMAPS monitoring sites were selected to provide researchers with accurate representation of air quality in Cleveland and surrounding areas. The year-long measurements will be conducted at two urban sites and one regional background site. The urban sites will be located at the George T. Craig Monitoring Station and at MetroHealth Medical Center. The background site will provide information about air pollution

transported from regional sources and will be located at Chippewa Lake in Medina County.

The locations for the shorter measurement periods will be the same as the year-long measurements, plus an additional site at Fire Station 13 in Cleveland. In addition, the shorter measurement periods will also include the placement of passive monitoring devices at Cuyahoga Valley National Park and approximately 20 fire stations throughout Cleveland.

How will the air pollutant measurements be used?

Modeling tools will be used to analyze the air pollutant measurements to provide information about the distribution of air pollutants throughout the study area, and the sources contributing to air pollution in Cleveland. The measurement data will be used to conduct modeling analyses to evaluate how pollutant sources impact people's exposures. CMAPS measurements also will be used to evaluate and improve advanced modeling tools that can be used in future air quality modeling analyses in Cleveland and other areas of the United States.

When will CMAPS occur?

The year-long air pollutant measurements for CMAPS will begin in July 2009. The two shorter measurement periods will occur in August 2009 and February 2010. Data and modeling analyses using the measurement data will continue through 2011.

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