

Introduction

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in air. This pollution, also known as particulate matter, is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores).

Fine particle pollution or $PM_{2.5}$ describes particulate matter that is 2.5 micrometers in diameter and smaller - 1/30th the diameter of a human hair.

Fine particle pollution can be emitted directly or formed secondarily in the atmosphere. Examples Sulfates are a type of secondary particle formed from sulfur dioxide emissions from power plants and industrial facilities. Nitrates, another a type of fine particle, are formed from emissions of nitrogen oxides from power plants, automobiles, and other combustion sources.

The chemical composition of particles depends on location, time of year, and weather.

Health studies have shown a significant association between exposure to fine particles and premature death from heart or lung disease. Fine particles can aggravate heart and lung diseases and have been linked to effects such as: cardiovascular symptoms; cardiac arrhythmias; heart attacks; respiratory symptoms; asthma attacks; and bronchitis. These effects can result in increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days. Individuals that may be particularly sensitive to fine particle exposure include people with heart or lung disease, older adults, and children. (referred from the website of US-EPA)

The Ministry of the Environment, Japan (MOEJ) has been taking actions against $PM_{2.5}$, including establishment of environmental quality standard, assessment of automated measuring equipment having equivalence to the standard measuring method, promotion of conduct of monitoring in cooperation with local governments, and studies on the guidelines for raising an alert. In the future, the EANET participant countries are also to discuss reinforcement of monitoring of $PM_{2.5}$, so summarizing and communicating the approaches and experience in Japan will have significant meaning for the EANET participant countries.

Aiming at possible practical application in the future training for EANET participant countries, and other opportunities, the approaches adopted so far in Japan for $PM_{2.5}$ are summarized.

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