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Abstract

Earth's atmosphere is vital to life and wellbeing. Air pollutants are generated from natural as well as from anthropogenic sources and contribute to air pollution in local, urban, regional, continental, or even global scale. Air pollution control aims to reduce emissions directly at the source of occurrence (i.e. firefighting) and with air pollution strategies and policies (i.e. use of catalytic converters in vehicles). Air pollution has been observed since ancient times, while a sharp increase has been recorded during the industrial revolution, and at the beginning of the mass production of vehicles. Indoor and outdoor air pollutant characteristics, as well as the pollutant source and measurement, combined with economic data (e.g. GDP) contribute to decision-making strategies and policies. In addition, air pollution is affected by the atmospheric transport processes of the pollutants and of the physico-chemical processes of their transformation. Dispersion models have been developed to identify the source of pollution, but also to predict pollutant concentrations. The reduction of atmospheric pollution can be achieved either by limiting the formation of the pollutants and its emission at the source, or by using an after-treatment technology. The effect of air pollution on human health, the ecosystems and the climate change are important, and the different countries are investing in research and establishing laws to reduce the emissions of air pollutants and of greenhouse gases emissions locally and globally.

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