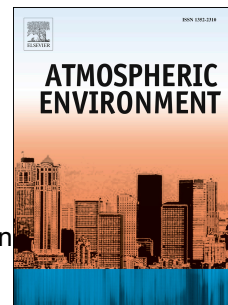


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Air quality, primary air pollutants and ambient concentrations inventory for Romania

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Abstract

Air pollution is among the greatest risk factors for human health, but it also poses risks to the food security, the economy and the environment. The majority of the pollutants emitted by human activities derive from the production and use of fossil-fuel-based energy. Most energy-related emissions contain sulfur dioxide and nitrogen oxides. The principal source of sulfur dioxide originates from coal, and the main sources of nitrogen oxide emissions are power generation and use of vehicles. Other important pollutants are the inhalable coarse particles (PM₁₀) and the fine particulate matter (PM_{2.5}), which arises from the building sector.

Over the last decade, since Romania joined the European Union on the 1st of January 2007, the use of fossil fuels has decreased dramatically, as consumers switched to either natural gas or biomass. This was as a result of the European Commission encouraging the member countries to make use of renewable sources (including biomass). To reduce the PM emissions, in April 2015 EC has extended the EcoDesign Directive to solid-fuel boilers and solid-fuel space heaters. The boilers need to generally meet certain requirements that will be introduced by 1 January 2020. In this article, we are highlighting the fluctuations in air pollution in Romania from the European WebDAB – EMAP database and trends in ambient concentrations of air pollutants using Romania's national air pollution monitoring network.

Romania's Air Pollutants/ Air Quality Monitoring Network consists of 142 automatic air quality monitoring stations. The results indicate that Romania's annual average mass emissions of CO decreased from 3,186 Gg in 1990 to 774 in 2014 (decrease by <76%), SO_x decreased from 1,311 Gg to 176 Gg (decrease by ~60%), NO_x decreased from 546 Gg to 218 (decrease by ~87%), CO₂ decreased from 66.226 Gg/year in 2007 to 38.916 Gg/year in 2014 (decrease by <41%).

Key words: *air pollution, country profile, inventory, Romania's policies, sustainable energy*

Abbreviations

EU, European Union; RES, Renewable Energy Sources; GC, Green Certificates; ANRE, National Regulatory Authority for Energy; GHG, Greenhouse-gas emissions; HPP, Hydroelectric Power Plant.

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