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Air pollution assessment on city of Tirana

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Air pollution is one of the hot topics on nowadays studies. This problem is often encountered on urban centers, especially on metropolitan areas. These areas are usually characterized by densely population, heavy traffic rates and the presence of many industrial plants on their suburbs. Problems regarding to air pollution on these areas are more evident over metropolitan areas in developing countries. Air pollution is mostly related to health effects, especially in outdoor environments. These effects regards primarily on respiratory and cardiovascular diseases.
Air pollution assessment on a specific area requires not only the estimation of pollutant concentrations in that area, but also determination of their principal sources as well as prediction of eventual scenarios on the area under investigation.
This study is focused on air pollution assessment on the city of Tirana, which is the major urban centre and the capital city of Albania. This city has about one million inhabitants. During the last 20 years, its population has grown about four fold, and it is still growing. Because of Albania is a developing country, its capital city is involved on serious environmental problems.
Considering these facts, we have conducted continuous monitoring campaigns on several sites of Tirana. These monitoring campaigns consist on measurement of several pollutant gases (SO_2, CO, CO_2, NO_x, etc.) and particulate matter over a period of 20 months.
In this paper there are obtained diurnal and annual variations of pollutant concentrations, there is modeled their spatial distributions over the area of the city, and there are estimated the potential contributions of principal sources like traffic and industrial plants.
During the entire monitoring campaign there are recorded also meteorological parameters, like temperature, relative humidity, atmospheric pressure, wind speed, wind direction, precipitations, etc. In this way we have tried to obtain the correlations between pollutant concentrations and meteorological parameters, and so to estimate their contribution on air pollution situation in this city.
Overall measurement results indicate a critical situation of air pollution in this city, where pollutant concentrations exceed international recommendations.
Because of in Albania these types of studies are very rare; the air pollution assessment in the capital city Tirana has an enormous importance not only for this city but also in general for entire the country.