

Spectral dependence of aerosol absorption over an urban coastal zone

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Spectral dependence of aerosol light absorption and Black Carbon (BC) concentrations were measured over Toulon, an urban coastal region in South France during 2005-2006. Average monthly BC concentrations varied between 0.3 and 1.0 microgram/m³ which was ~2-5% of the aerosol mass (PM10). Angstroms absorption coefficient estimated from the spectral dependence of absorption coefficients varied between 0.95 and 1.6. Our results show excess absorption as high as ~33% at shorter wavelengths during winter season and negligible absorption during summer months. The implications of the results would be discussed.

Environmental impact of mining industry

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The results of the monitoring of heavy metal (HM) pollution of the soils of Armenia's industrial regions have indicated that the specificity of Armenia's territory is its metallogenic specialization for Mo, Cu, Pb and a number of other metals, that predetermines their high natural background often overstepping the established maximum acceptable concentration (MAC) for separate elements.

While assessing man-made pollution, such a fact supports a necessity to consider the level of chemical element concentrations in natural geochemical anomalies, typical of which are high values of element contents.

Thus, one actually assesses summary concentration of chemical elements in the environment formed as a result of the overlay of 2 constituents: primary elevated natural (geogenic) and technogenic. A typical result of such an inclination is ecological situation around the Kajaran deposit.

This research covers the areas of Kajaran c. and 3 tailing repositories. The mining and dressing plant is a city-forming enterprise: it directly borders upon the city with a population of some 9 thousand people. The city lies in the area of sulfide copper-molybdenum deposit and is a natural biogeochemical province enriched by Mo and Cu.

The complex investigations were carried out to reveal environmental impact of mining industry. The research indicated that the contents of HM for study soils, crops, fodder grasses, air, are excessive vs. MAC, including high toxic elements. The assessment of risk factors indicates that the citizens are exposed to a heavy load of environmental pollution with HM that can enter the organism through respiratory ways and food chains.

To assess the level of the impact of pollution upon the organism, as indicators children were selected as the most sensitive risk group in the populace. From 12 children of preschool age hair samples were collected. In most cases, concentrations of toxic elements are excessive vs. the lowest and sometimes peak accepted levels.

The obtained research outcomes evidence the presence of significant risk factors to the public health as a result of operation of the Kajaran mining and dressing plant. The research was performed in period 2005 to 2007 by the order of the municipality of Kajaran under support of the OSCE Office in Yerevan.