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## **PARTICULATE MATTERS GENERATED BY CAPRISOARA TAILING POND AND THEIR IMPACT ON AIR QUALITY**

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### **Abstract**

Analyzing and reducing the possible effects of air pollution on human health became important issues for improving the quality of life in urban areas. Particulate matters (PM) are air pollutants with a potential important impact on the health of vulnerable people (e.g., children, elderly) and non-vulnerable people as well. The level of PM air pollution is mainly influenced by the PM concentration and by parameters such as the meteorological conditions and the synergic effects of other air pollutants. Different climate scenarios have been developed to model the PM dispersion generated by the Caprisoara tailing pond, which stores the ashes from the Paroseni thermal power plant, and the effect on city Vulcan from Jiu Valley, in the Meridional Carpathian Mountains. The PM dispersion was simulated using the METI-LIS version 2.03 (Ministry of Economy, Trade and Industry – Low rise Industrial Source dispersion model) – a software developed under the funding of the Japan Ministry of Economy, Trade and Industry and the Research Center for Chemical Risk Management from Japan. The dominant direction of the winds in the Vulcan area is west, west-north-west, therefore the contribution of the Caprisoara tailings pond to PM generation in Vulcan is limited to periods when the wind blows from south, south-south-west, with an above average intensity in the conditions of a turbulent atmosphere, which happens during the summer. A cheap solution to minimize the displacement of fine particles is to maintain permanently a layer of wet material on the top of tailing pond.

*Key words:* air quality, METI-LIS, particulate matter dispersion, power plant ash, tailing pond

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