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AN ELECTRON MICROSCOPE STUDY OF THE AIRBORNE PARTICLES IN NORTHEAST MEDITERRANEAN

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ABSTRACT

The chemical and physical characteristics of airborne particulate matter in urban and in industrial environments are very complex and dynamic. The measurement and determination of the chemical and physical characteristics of particulate aerosols is essential in the application of environmental control by identifying sources and describing the origin and fate of the various products of atmospheric chemical interactions.

In Iskenderun Gulf Northeast Mediterranean there is a big industrial zone with several important metallurgical plants, pipeline terminals and is known that in the adjacent urban zone and coastal region.

In this study atmospheric particulate samples were obtained, using the impaction collector, from four very different sites in the Gulf: rural, coastal, industrial and urban.

In order to investigate chemical composition and associated morphological characteristics of airborne particles, an analytical transmission electron microscopy with energy-dispersive X-Ray (TEM-EDAX) was used. The combination of analytical methods (TEM-EDAX) allowed us to characterize these particles in more detail and identify its source.

Thus, the approach presented here can be used to determine the physical and chemical composition of particles and to refine source apportionment based on particles analysis.