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Elemental, Polycyclic Aromatic Hydrocarbons and Organochlorine Composition of Atmospheric Fine Particles during African Dust Events in the Eastern Mediterranean

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The Mediterranean basin receives large amounts of airborne mineral dust emitted from regions located in the Sahara-Sahel-Chad dust corridor, which effects the climate, human health and both terrestrial and aquatic ecosystems. We report the study of the elemental, the polycyclic aromatic hydrocarbons (PAHs), the polychlorinated biphenyls (PCB) and the organochlorine pesticides (OCPs) occurrence of fine particles and aerosols during African dust and non-dust events in the Eastern Mediterranean (Greece and Cyprus). Samplings sessions have been conducted on land based stations (Island of Crete) and in the open sea (AQABA campaign) to collect PM10, PM2.5 samples, and aerosols (gas and particle phase) in order to study the the partitioning of PAHs, PCBs and OCPs.
Forty-seven major and trace elements were simultaneously determined in each sample by ICP-MS. Trirty PAHs, forty-eight PCB congeners and the ten most common OCPs were determined by GC-MS and GC-NCI/MS. The results of the elemental composition and enrichment, of the PCBs and OCPs occurrence will be presented in detail. The average chemicals concentration and composition, of the samples, will be discussed in view of their relationship with events affected and not affected by African dust. In addition, the corresponding gas-particle partitioning of PAHs, PCBs and OCPs will be presented.