

# **Elemental, organochlorine and bacterial communities 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 will report a two-year study (2012-14) of the multi-elemental monitoring and elemental enrichment, the occurrence persistent organic pollutants, such polychlorinated biphenyls (PCBs) and organochlorine pesticides (OCPs), and the bacterial composition of fine particles during African dust events on the Island of Crete (Greece). Twenty-four hour sampling sessions have been conducted in a semi-rural area (35° 18'N, 25° 45'E) and PM<sub>10</sub> and PM<sub>2.5</sub> samples have been collected.

Forty-seven (47) major and trace elements were simultaneously determined in each sample by ICP-MS. Forty-eight (48) PCB congeners and the ten (10) most common OCPs were determined by GC-NCI/MS. Bacterial composition and diversity was studied by Illumina amplicon sequencing (by targeting the V3-V4 hyper-variable regions of the 16S rRNA gene using primers U341F and 805R). The results of the elemental composition and enrichment, of the PCBs and OCPs occurrence, and of the bacterial composition and diversity of the collected atmospheric samples will be presented in detail. The average chemicals' concentration and composition, and the bacterial community composition and diversity of fine particles, will be discussed in view of their relationship with events affected and not affected by African dust.