Seasonality of the chemical composition of PM$_1$ over Cyprus using near real-time measurements. Sources and geographic origins.

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The dominant PM$_1$ component, shown in Fig. 1, was OA, accounting for 43% which corresponds to an annual average concentration of 4.41 μg·m$^{-3}$. Sulfate contributed in average 2.64 mg·m$^{-3}$ at 26% and ammonium 2.41 mg·m$^{-3}$ at 24%. Finally nitrates contributed 0.3 mg·m$^{-3}$ and Black Carbon 0.36 μg·m$^{-3}$, a 3% and 4% respectively. Chloride was found to contribute a negligible amount.

Figure 1. Monthly average PM$_1$ mass loadings and chemical composition over Agia Marina Xyliatou

The observed annual cycle exhibits a maximum, in August with respect to total mass. The minimum was observed in February. This behavior can be related to long range transport during summertime from the wider Northern sector, and pronounced removal mechanisms affecting air masses during wintertime coinciding with the wet season in Cyprus. This assumption is further supported by the annual variation of sulfate and ammonium which seem to follow closely this trend exhibiting maxima in August and minima in January and February. The winter maximum observed for January is mainly driven by OA along with BC, while ammonium and sulfate remain close to their minimum values.

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