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Aerosol characterization at the Mt. Cimone high mountain station during summer 2004

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Atmospheric aerosols in the coarse (PM_{10}) and fine (PM_1) fractions together with aerosol size distributions have been continuously sampled at Mt. Cimone (2165 m-asl) during a three-month campaign carried out in the summer 2004. Aerosol samples have been analysed by X-ray fluorescence to determine their elemental composition. Aerosol size distribution has been determined by a spectrometer in the range 0.3 - 20 μm. Thermo-optical analysis is planned to identify the elemental and organic carbon content in the fine aerosol samples in order to define the contribution of polluted air masses reaching Mt. Cimone.

The aim of this campaign was to provide the elemental qualitative and quantitative characterization of aerosols at a continental free-tropospheric site in the Mediterranean basin. Mineral dust, marine and sulphates aerosols, aerosol size distribution together with three dimensional back-trajectory analysis, permitted a classification of air masses from different source areas, ie: Sahara desert, Mediterranean Sea and Atlantic Ocean, Po valley and continental Europe. Preliminary results of this study will be presented and discussed.