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Evolution of organic and inorganic components of aerosol during a Saharan dust episode observed in the French Alps

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Abstract. A Saharan dust event was observed in a rural area in the Maurienne Valley (French Alps) in summer 2000. Detailed data on PM_{10}, particle numbers, and aerosol chemistry (ionic species and Elemental Carbon (EC) and Organic Carbon (OC)) are presented. The comparative evolutions of particle numbers and chemistry (calcium, sodium, and sulfate) show that the overall period included two episodes of dust particles with very distinct chemistry, followed by an episode with a large increase of the concentrations of species with an anthropogenic origin. The overall data set does not indicate large interactions between the dust particles and compounds from anthropogenic origin (sulfate, nitrate) or with organic carbon, all of these species showing very low concentrations. Simplistic calculations indicate that these concentrations are consistent with our current knowledge of adsorption processes of gases on mineral dust in a clean air mass.

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