

Interactive
Comment

Interactive comment on “African dust outbreaks over the Mediterranean Basin during 2001–2011: PM₁₀ concentrations, phenomenology and trends, and its relation with synoptic and mesoscale meteorology” by J. Pey et al.

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The authors present an extended analysis of African dust outbreaks over the Mediterranean Basin based on an 11-year period using an estimation of natural dust contribution using PM₁₀ data from regional and suburban background sites. At first, I want to congratulate the authors for this work. This will be a very useful dust observational dataset for the scientist community. In fact this could be considered as a first step on the exploitation of rather complete databases. As the authors state in their manuscript, the lack of routinely chemical analysis can be compensated for the application of new

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methodologies based on a statistical methods.

The results are consistent with other studies based on aerosol optical properties obtained from satellite, sunphotometer and lidar observations in the region. Therefore, it would be desirable if the authors link their results to previous studies that are found in the literature (e.g. Barnaba and Gobbi, 2004; Antoine and Nobileau, 2006; Papayannis et al., 2008; Basart et al., 2009) to better justify and discuss their results in relation to the typical transport African dust paths to Southern Europe.

Otherwise, the authors highlight the high contribution of African dust in the eastern Mediterranean sites in comparison with western Mediterranean sites. In their discussion, the authors do not consider the contribution of Asian dust sources from Middle East and Negev deserts (in Israel) that also contributes to dust budget in this area as shown in other studies in the region (e.g. Kubilay et al, 2003; Derimian et al, 2006; Koçak et al., 2012). In my opinion, this is the explanation of the high values observed in AYM and FKL sites with maximum impact in AYM due to its proximity to Asian dust sources. If the authors would include the 3-day back-trajectories in the analysis of the dust outbreaks in the eastern Mediterranean (instead the 5-day back-trajectories as indicated in the methodology), they will assure the origin of the air masses in these sites.

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