

Interactive comment on “Profiling of aerosol microphysical properties at several EARLINET/AERONET sites during July 2012 ChArMEx/EMEP campaign” by M. J. Granados-Munoz et al.

Anonymous Referee #3

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The paper is clearly written and the authors provide an overview on the dust event that mainly affected the western Mediterranean from 9 to 11 July 2012, without adding any new scientific insight on the spatial and temporal evolution of Mediterranean dust events. Therefore, the paper is not appropriate for the ACP journal, to my opinion.

The methodology applied in the paper is commonly used to analyse dust outbreaks and it was also used by Sicard et al., 2015 to characterize the same dust event at the same sites of this study.

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The results referring to Evora should be taken away from the manuscript to my opinion. Note that Fig. 6a of the paper by Sicard et al., (2015) indicates that the Evora lidar signals around 1 km agl were likely affected by the lidar field of view. Note also the sentence at line 225 of the manuscript “ the initial vertical resolution. . . .was established to. . . .100 m”. The aerosol layer of Fig. 6 extends within 200-400 m.

In addition, I believe that the altitude scale of the RCSs referring to Evora (fig. 5 of the manuscript) is wrong, since it should start at 0 and not at 1 km, as it is clearly shown in Fig. 5a of the paper by Sicard et al., (2015).

Lines 529-531: The sentence “.. the decrease in the fine mode in the coincidence with the increase in the coarse spherical mode could be associated to the aging of the mineral dust particles and aggregation processes” is to my opinion rather speculative. I believe that Fig. 6 referring to Granada on 11 July , likely reveals the presence of a dust layer up to about 1.5 km and another dust layer from 3 to about 5.5 km agl.

The presence of different dust layers along the aerosol column, as well as the high spatial and temporal variability of the aerosol vertical profile during dust events has been presented and discussed in several papers.

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