

***Interactive comment on “Synergetic monitoring of Saharan dust plumes and potential impact on surface: a case study of dust transport from Canary Islands to Iberian Peninsula” by C. Córdoba-Jabonero et al.***

**Anonymous Referee #2**

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General:

The paper reports a long-range transport of Saharan dust. A dense set of optical observations with sun photometers and lidars, and in situ observations of the size distribution are presented. The material is original and appropriate for publication.

Details:

Page 6: The lidars suffer from overlap effects (laser beam with the field of view of the receiver). How large is this effect (height range before overlap is one), how is it

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corrected? How large are the uncertainties for the different systems?

Page 11, section 5.2.1 a: Please discuss the impact of overlap correction uncertainties.

Page 12, section 5.2.2: Again, how large is the error in the lidar ratio retrieval because of uncertainties in the overlap correction. Is certainly of the order of 20-50%.

Why are lidar ratios obtained with Raman lidar not shown, they are not affected by overlap effects. Should be improved.

Page 15: I checked the AERONET website. There are a plenty of trustworthy size distributions retrieved for ARN and GRA on 14 and 15 March 2008 (level 1.5). Level1.5 is sufficient (level 1.5 should be stated). The level 1.5 data should than be plotted together with the in situ size distributions (in Figure 11) and the differences should be discussed. How do the effective radii match, is one of the interesting questions, as mentioned by Muller 2010?

This would be a highlight of the paper. It is not acceptable that AERONET level 1.5 data are just ignored, although they clearly indicate the dust mode of the size distribution.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 27015, 2010.

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