

***Interactive comment on “Extreme Saharan dust event over the southern Iberian Peninsula in september 2007: active and passive remote sensing from surface and satellite” by J. L. Guerrero-Rascado et al.***

**J. L. Guerrero-Rascado et al.**

alados@ugr.es

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We would like to thank the anonymous Referee #1 for their positive evaluation of the paper and the helpful critical comments that favours the discussion and will serve for improving the manuscript.

In reference to the specific comments and technical corrections, we will follow the reviewer's comments to improve and correct the revised version of the manuscript.

The Referee #1 suggests that the paper is much too long and recommends to make

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two papers with different focus or to stay with one shortened paper. We consider that the first option is feasible and the best solution. Following this line, the paper part 1 will present the experimental evidence based on lidar, photometers, satellite data and the comparison of data from different platforms, also including the regional analyses with ground based and satellite remote sensing. This part 1 will be modified and streamlined following the Referee#1's advises, suppressing some parts but strengthen other sections like that related to AERONET retrieval at the different stations. The paper part 2 will be devoted to analyze the transport and the radiative impact of the Saharan dust event that, as the Referee #1 indicates, is too short in the present version. A deeply description of the results obtained (not included in the present version) about transport and radiative impact based on heating rates and radiative forcing computations will focus the part 2. In addition, this part will include the results obtained regarding to the modification of the thermal structure of the atmosphere over the Granada station and also on regional scale, showing large differences over close locations separated around 500-600 km.

In reference to the trustworthiness of the drop with height of the beta-related Angström exponents mentioned by the Referee #1, we must indicate that all profiles have been carefully checked. In this sense, we must say that this drop is not systematic in all beta-related Angström exponent profiles, see for example profiles on 3rd, 4th and 7th September, where the opposite trend is observed. We don't show upper parts of the profiles because they become noisy due to a sharp drop of the backscatter profiles involved in the computation of the Angström exponents, but the general trend at higher altitudes is an increase.

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