

Interactive comment on “Temporal variability of mineral dust concentrations over West Africa: analyses of a pluriannual monitoring from the AMMA Sahelian Dust Transect” by B. Marticorena et al.

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Response to reviewer 2.

By Marticorena et al.,

We thank Anonymous Referee 2 for his or her review. Corrections on wording or typography will be accounted for in the revised manuscript. In the following, we address the specific points raised as important point by the Referee.

1. The review mention that “this paper is not particularly new in that sense that its
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originality and the scientific interest on dust concentration variability are fair” arguing that “this type of measurements and observational analyses has already been done for cases over other desert regions such as those in East Asian deserts”.

We would like to comment on this appreciation. The case of the Sahelian region is quite different from East Asian Deserts since it is both a region of dust transport and deposition from the Sahara and a source of mineral dust. The questions of the relative weight of Sahelian dust emissions compared to Saharan dust emissions and the contribution of sahelian dust to the global dust load are still unresolved and subjects to many investigations. The concentrations measurements provided in this study allow to discriminate the cases of Saharan dust transport from those associated local dust emission and to provide quantitative information of the resulting concentration levels. It also highlights the predominant role of convection in the Sahelian dust emission, a process that is not a main driver of Asian dust emissions. In addition, as mentioned by the reviewer, the results from the presented analyse are reinforced by the fact that it is conducted over several years.

Specific Comments:

2. In lines 7-5 from the bottom on page 8063, the authors explain that the PM10 concentrations in Sahara are lower than those in the Sahelian stations, owing to the relative locations from the source regions. I am confused with this description. It seems to me that the Saharan locations are much nearer than those in the three Sahelian points (which are examined in the present paper). Could you explain why on this point?

The formulation of this sentence is apparently ambiguous and will be corrected in the revised manuscript. This sentence is a summary of the comparisons made with concentrations due to Saharan dust transport measured downwind of the Sahara (Cape Verde Islands and Canary islands. So what is meant is that the dust concentrations in these stations (which are not Saharan stations) are lower than those measured in the Sahelian stations that are located closer from the source regions from which originat

the mineral dust impacting these stations. This will be more precisely indicated in the revised manuscript.

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