

Interactive comment on “AIRUSE-LIFE +: Estimation of natural source contributions to urban ambient air PM₁₀ and PM_{2.5} concentrations in Southern Europe. Implications to compliance with limit values” by Evangelia Diapouli et al.

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This manuscript describes a well performed analysis of the contribution of natural sources to PM concentrations in 5 cities in Southern Europe. One year of data collection of PM and chemical analysis was performed. The data analysis is based on various state-of-the-art techniques. The results are presented and discussed appropriately. The text is well written and the reasoning well documented. The manuscript is a nice piece of craftsmanship. It lacks scientific inspiration or innovation. Considering the Aims and Scope of ACP, i.e. “...The journal scope is focused on stud-

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ies with general implications for atmospheric science rather than investigations that are primarily of local or technical interest..." (http://www.atmospheric-chemistry-and-physics.net/about/aims_and_scope.html), *the manuscript is barely publishable there.*

We are obliged to the reviewer for the positive remarks. Although his suggestion on the "barely publishable" quality of the manuscript is vague and unclear, we make an effort below to respond to all the points raised. It is noted that the notion of net dust as described in the current literature has never been tested, as far as we know, against the physical components of dust as described by the stoichiometric calculated component, the PMF derived net dust component and the estimated dust component by transport models like Skiron. All this is done at the same harmonized dataset and for several cities. This kind of sensitivity analysis to our view is innovative, has never been tried before and is introducing new methodology which can be guidance to other studies, as well as having serious policy making impact in South Europe. The continent of Europe and the effect of the Sahara which is the largest dessert on earth can hardly be considered of local interest. We believe that these are the kind of elements that are very well within the Aims and Scope of ACP.

Specific comments: The reasoning for the obtrusive mentioning of "AIRUSE-LIFE +", even in the title of the manuscript, becomes slightly clear after reading the acknowledgements, but not earlier than that. The acronym should be deleted from the entire manuscript except the acknowledgements.

It is not understood why the reviewer finds the title of the LIFE+ programme funding the major part of this research obtrusive and requests the removal from the title. This is against ethics of the scientific community where, when the scientific work is the result of an international programme like in this case AIRUSE, its title is often used throughout the text, e.g instead of mentioning the campaigns in each city we refer to them as AIRUSE cities, the results obtained as AIRUSE data and so on. In many cases in the literature large experiments or even smaller ones are mentioned even in the title (see ACE experiments, INDOEX, SUB-AERO, PARTEMIS, etc.). We therefore request to

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pass on this suggestion by the reviewer as it does not have any scientific nature.

page 2, line 10: it is not clear what is meant by “This natural background ...” because in the line before, it is talked about “both to natural sources and anthropogenic long range transported particles”.

This phrase has been revised in order to be more precise.

page 4, line 26: how is nss-Na computed?

nssNa is computed based on a typical earth’s crust elemental ratio (with respect to Al), as: $nssNa = 0.348 \times Al$ This formula is mentioned in the text on Page 4, Line 27 (of the initially submitted manuscript), just below the formula describing the calculation of ssNa.

Fig. 12: Figures should not have headings, just subscript captions

The headings have been replaced by relevant labels and the caption has been slightly modified in order to reflect the annotations on the two figures.

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