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Interactive comment on "MOPSMAP v0.9: A versatile tool for modeling of aerosol optical properties" *by* Josef Gasteiger and Matthias Wiegner

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We are grateful to reviewer 1 for his/her positive rating of our manuscript and useful suggestions. In the following, comments by the reviewer are in italic font, our answers in normal font.

Moreover we want to refer to the revised manuscript where all changes can easily be tracked. We decided to not repeat all changes below for reasons of clarity.

page 13: it is described the core of the calculations needed to combine the optical properties of single particles to model particle ensembles, which is key for real-world

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Discussion paper

applications. I found the description from lines 5 to 13 unclear. The authors state that each aerosol mode is decomposed into eight contributions, stemming from the combination of the interpolation weights on m_r, m_i and ϵ'. I suggest to include a simple example, perhaps with only two variables (e.g. m_r and m_i), to allow a better understanding of this algorithm with summation over weights combinations.

We agree that this description needs to be improved and thus rephrased it in the revised manuscript. Furthermore, we added an example in Section S4 of the Supplement and refer to this example in the paper.

page 13: in the last paragraph, it is mentioned that the combinations are generally J and not eight, but the reason is unclear. Please clarify with an example.

This confusion is probably also a result of the previous paragraphs. The case mentioned (a fixed m_r, m_i and ϵ_m given by the user) where eight contributions are necessary is just an example. For example, if an ϵ_m distribution is given by the user instead of one fixed ϵ_m, a larger number of contributions is required for a mode. Furthermore, if the ensemble consists of more than one mode the contributions from the different modes need to be added, thus J increases as well. We rearranged and improved this section such that this point should be more clear now. Moreover, Section S4 of the Supplement will certainly help to make clear how the interpolation is done (in an "easy to follow case").

page 13: the final calculations of ensemble optical properties are a summation over the aerosol modes included by the user. I suggest to add the information, in this paragraph, that this is equivalent to the so-called "external mixing" assumptions, compared to possible "internal mixing" assumption on the mixing state.

The reviewer's suggestion helps the reader to understand better the context, so we added a sentence 'This approach corresponds to the so-called external mixing of particles.' in this paragraph.

page 18, line 12: the URL of the tool's web interface is given here for the first time in the manuscript. I suggest to put the information also in the abstract, for more immediacy.

We agree that the URL should be given in the abstract and changed it accordingly. Moreover, we mention the URL also at the end of the introduction and in the conclusions.

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