

Response to technical comments

Dear Authors of AMT-2021-11,

I'd like to thank you and the reviewers for their contributions, which in my opinion greatly helped the quality of the original manuscript. I think you satisfactorily addressed all points raised by the reviewers, and recommend the paper for publication in AMT.

Thank you for the kind comments.

The language was improved greatly too from the very first submission, but I encourage you to revise it yet another time, for better readability.

We have reviewed the document again and have improved the English in a few places.

I have some small technical points I'd like you to solve before publication in AMT, listed below:

L133- 1.5 +/- 0?

We changed the sentence from "Particle mass loadings (PM_1 , $PM_{2.5}$ and PM_{10}) are then calculated from the particle size spectra and concentration data, assuming a particle density and refractive index (default density is 1.65 g/ml and refractive index is 1.5+i0)." to "Particle mass loadings (PM_1 , $PM_{2.5}$ and PM_{10}) are then calculated from the particle size spectra and concentration data, assuming a particle density and refractive index (default density is 1.65 g/ml and complex refractive index is 1.5+i0)." to make clear that i refers to the complex part of the refractive index.

L136, L140: remove "which" and provide-provides

Changed

L143 $Nd^{1.1}$ in superscript: this is not very clear, I think you should express it more explicitly.

We have extended the section to the following:

"Two Naneos Partectors (Naneos Particle Solutions GmbH) provide the lung deposited surface area metric (LDSA, $\mu m^2/cm^3$) in the particle diameter range 10 nm to 10 μm . In general, the instrument charges particles with an efficiency proportional to the particle diameter to the power of 1.1 ($d^{1.1}$) and is independent of particle composition. The particle number concentration (N) is also provided for all particles, resulting in a $Nd^{1.1}$ metric that can be correlated to LDSA."

L230-231: I have the impression that adding exactly the explanation you provided to Reviewer#2 in your responses, would further help the explanation in the paper.

We have enhanced the explanation to “Though the clustering process could be applied for the FIDAS data, which are comparable in size range, it was not performed in this study because of the limited size bin data of the FIDAS instrument.”

L395: extend-extent.

changed