

## Responses to Editor

*I am happy to include your manuscript as article in Atmospheric Chemistry and Physics. However, I have two minor technical corrections you want to address before proceeding with the article's publication.*

A: Thank you very much for including our manuscript as an article in Atmospheric Chemistry and Physics. We also appreciate your very detailed last comments that could only improve our manuscript. Below are our responses to your comments.

### Comments

*Q1: Figure 8b: A single red data point is present without any uncertainty bars. Is this a mistake in plotting? If not, is this data point included in the fit?*

A: Thank you for pointing out our mistake. A single red data point is removed in Figure 8b in the revised manuscript.

*Q2: Figure 9: Those figures display a negative  $\kappa_{org}$ . This is, it seems the result of the equation given in the figure caption. However, what is the physical meaning of a negative  $\kappa_{org}$ ? The text does not discuss this issue. If a reader just looks at this figure, how should the negative  $\kappa_{org}$  be interpreted. Is it an "apparent"  $\kappa_{org}$  for the purpose of showing the correlation? Some additional clarification would be beneficial.*

A: Thank you for this legitimate comment.  $\kappa_{org}$  is an estimated value to show the relationship between size-resolved organic factors and hygroscopicity. The explanation of how  $\kappa_{org}$  is calculated is added in the caption of Fig. 9, and how negative values can appear is explained in the text (Line 390-393) in the revised manuscript:

“It is noted that  $\kappa_{org}$  in Fig. 9 is an estimated value with a simple assumption (see figure caption) to show the relationship between size-resolved organic factors and hygroscopicity. Negative  $\kappa_{org}$  appears when  $\kappa_{inorg}$  is high even if the volume fraction of inorganics is low (i.e., low  $\varepsilon_{inorg}$ ).”