

## Reviewer #2:

The paper is much improved and the hygroscopicity distributions in Figures 2b and 4b are quite nice. Since the manuscript was uploaded in place of the supplementary material, I am unable to evaluate the supplementary material for this paper.

I have only the following technical corrections to suggest:

- 1) In the instrumentation section, since  $D_{90}$  is used to denote diameter at 90%RH, using  $D_0$  suggests diameter at 0%RH, which is not realistic. I suggest using the convention adopted in Figure 1--  $D/D_0$ .
- 2) The sentence "...identified at the site during (Crippa et al., 2014) on Pg. 13, Line 1 is unfinished.
- 3) The kappa axis in Figures 1, 2a, and 4a do not look correct. Shouldn't  $\kappa=0$  when  $GF=1$  as in Figure 3? I realize that negative kappas are non-sensical, but it can be noted in the text that these values are as such and are due to uncertainties associated with the DMA transfer functions.

## Editor comments

- p. 2, l. 3: Either 'Aerosol ...displays..' or 'Aerosols ...display...'
- p. 7, l. 27: Add charges to the ions:  $\text{NO}_3^-$ ,  $\text{SO}_4^{2-}$  and  $\text{NH}_4^+$
- p. 8, l. 3: The terpenes themselves are gases. It should be 'SOA formed from the terpenes...'
- p. 11, l. 22: the authors did...
- p. 13, l. 1: Did Asmi et al. really measure 'cloud activation' at pdD? Or did they characterize CCN properties?
- p. 13, l. 18: Do you mean 'ammonium nitrate and/or other nitrates'?
- p. 15, l. 21: Put years into parentheses.
- p. 16, l. 19: Air masses are not hygroscopic
- p. 17, l. 18: 'Kreidenweis' misspelled
- p. 18, l. 29: The hyphens are confusing. Maybe better: ...essential for comparisons of in-situ to remote sensing data.

Editor comment, following up on Reviewer#2's comment 3) above: I agree that the scaling of GF and kappa in the mentioned figures looks odd (it seems correct in Figure 5). According to your Equation (1),  $\kappa = 0$  if  $GF = 1$ .