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Interactive Comment

Interactive comment on "A comprehensive evaluation of water uptake on atmospherically relevant mineral surfaces: DRIFT spectroscopy, thermogravimetric analysis and aerosol growth measurements" by R. J. Gustafsson et al.

R. J. Gustafsson et al.

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Comment 1

Authors claim that the aerosol size distributions of calcite and ATD aerosol are bimodal (p.7197-7198). If one takes the parameters of the two peaks for the ATD S2579 (D1=61nm,D2=270nm,sigma1=10,sigma2=31) and sums these peaks to reconstruct the original spectrum then one gets a very broad peak with only one maximum. So it is not clear how the authors deconvolute such a broad peak into two. This is a critical point since it questions the data shown in Fig.4 and Fig.6.



Response to comment 1

This is an error in the text and has been corrected. The revised manuscript will show the distributions. **Manuscript to be amended.**

Comment 2

In lines 20-21 (page 7200) the authors write: "As far as we are aware, this is the first laboratory determination of the hygroscopic properties of mineral dust aerosol". It should be mentioned that Archuleta et al. (2005) published the HTDMA data on hygroscopic growth of Asian dust in ACPD earlier this year. In the discussion to that paper Dr. Demott presented the interesting experimental details on aerosol spray generation from the dust suspension. Also the hygroscopic properties of ATD, generated by dry-dispersion method, were measured by the HTDMA method and published in the may2005 issue of the AST journal.

Response to comment 2

We thank Dr Vlasenko for pointing out these other studies. Possibly: We note the discussion of water soluble components present in ATD samples, and acknowledge that this is a possible source of uncertainty in our work. However, in view of their low concentration in the solid sample they are unlikely to present a significant source of error. In fact, we made a series of measurements on the growth of dust from which we have tried to exclude the water-soluble components, and similar hygroscopic properties were observed. We will amend the manuscript accordingly to reflect these studies.

Comment 3

Fig.4 and Fig.6 are mixed with each other. In the text p.7198 "CaCO3 At 80 percent RH. growth factor 1.09" while on Fig.4 (according to the caption) GF(80 percent)=1.14.

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Response to comment 3

Thanks. This is an error which will be corrected. Manuscript to be amended.

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