

***Interactive comment on* “Observation of nitrate coatings on atmospheric mineral dust particles” by W. J. Li and L. Y. Shao**

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I think that your interesting manuscript is missing statistics on the number of particles upon which your different results (sections 3.1 and 3.2, figs 3 and 6) are based.

Since you are making overall averages based on samples collected during very short periods over different episodes of high turbidity, and that you analyze only a subset of every selected sample (by the way you could indicate how much of the sample the 4 windows analyzed do represent), I find necessary to argue on the robustness of your results. For instance you should check whether analyzing several sets of 4 windows on the same sample provide consistent results, whether analyzing 2 different samples of a given episode provide consistent results, and whether results from one haze episode to another are consistent. A too great variability would put concern on the significance

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of your averaged results, probably given with a too high precision (e.g. at the 1% level for the different types of particles in section 3.2).

Although it is not quite clear whether the quantitative results on coated particles and coatings shown are averaged by mixing the 10 brown haze episodes plus the single desert dust episode, it seems to be the case. Is this justified?

The dust case is hardly discussed in the paper. It would be interesting to comment whether the coated particles have a specific composition compared to the non-coated ones? The information given in the conclusion on the large difference in the fraction of coated particles between brown haze and desert dust cases (about 90% and 5%, respectively) is important and might also be given in the abstract.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 19249, 2008.

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