

Interactive comment on “Minor effect of physical size sorting on iron solubility of transported mineral dust” by Z. B. Shi et al.

Anonymous Referee #1

Received and published: 27 June 2011

This is a very solid paper, with good referencing of the relevant previous papers, and very clear description of processes. I have only minor comments on the paper.

I'm not sure why you went ahead with the modeling, since it was clear you could not obtain the differences in solubilities observed in Baker and Jickells, 2006 with the soil samples you had? But it is interesting to see what those impacts are.

Hand et al., 2004 show that a simple chemical mechanism and the longer lifetime of fine particles does result in a realistic difference in fine and coarse mode solubilities; supporting your conclusions that size differencing alone can't explain.

It is unfortunate that you did not look at P solubilities, since an interesting result of Baker and Jickells, 2006 was that while Fe solubilities did not look to change with distance

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from the sources, P solubilities did!

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 14309, 2011.

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