

Interactive comment on “Evidence of mineral dust altering cloud microphysics and precipitation” by Q.-L. Min et al.

Anonymous Referee #1

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Min et al. presents a manuscript on aerosol / cloud effects, specifically due to mineral dust as it affects microphysics and precipitation. This study is centered on a trans-Atlantic event of Saharan origin which occurred in early 2004. Satellite data from several platforms is used. This is a well written and clear paper but my major concern is that the authors try to make this case much more certain than it appears to be. Thus, while this is an interesting case study I suggest that the wording of the paper should include more comments on the uncertainty associated with the study.

1. There is a comment posted by Drori Ron regarding the certainty in the aerosol type (mineral dust as opposed to, e.g., biomass burning). This comment needs to be addressed by the authors. How certain are they that this is dust? Was there any in situ data that can help elucidate this? Did this event show up in monitoring stations

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downwind? E.g. IMPROVE, AERONET, etc.? 2. There appear to be a number of instances where terms such as "It is clearly evident"; (pg 18894), "reveals a substantial"; (pg 18897), "a big change." (pg 18901) are unsupported. These are examples, not the only instances. I suggest the authors review the text and (preferably) quantify these statements or (if necessary) back off the level of certainty. 3. In the introduction there is reference made to the work of DeMott et al., 2003 and Sassen et al., 2003. The authors may also consider Cziczoet al. Single Particle Measurements of the Chemical Composition of Cirrus Ice Residue During CRYSTAL-FACE, JGR 10.1029/2003JD004032. 4. Another set of works that are noticeably absent in the references are those of Prospero et al. One specific example is Prospero, J.M., Case Study: Saharan dust impacts and climate change, in Climate Change, Oceans, and Human Health by J.A. Patz, S.H. Olson, and A.L. Gray, Oceanography 19(2), 60-61, 2006. 5. Minor : Pg 18897 "shows a "; diagrams"; ; should be singular or plural, not both.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 18893, 2008.

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