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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Atmospheric aerosols in the earth system: a review of interactions and feedbacks" *by* K. S. Carslaw et al.

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The general point made by the referee is that the paper is not very readable. To address this we have made several changes: (i) we made the subsections consistent between each section to provide a more obvious roadmap through the paper; (ii) we split the main table on key future research into 5 smaller tables and tied them much more closely to the subsections titled "Summary and status of xy in earth system models". These subsections are now more conclusive. We have also gone through the entire text to make it more concise in places.

The referee also requested more discussion on cloud processes. We have decided not to do this. The aim is to review specifically the response of natural aerosol to climate change and not the response of the entire aerosol system and all the associated

processes. The interaction of natural aerosol and clouds is discussed where relevant (dust as IN, DMS sulphate as CCN, biogenic SOA producing CCN etc). The impact of climate change on clouds and how that affects aerosol is not a well developed subject, and is not central to this review of natural aerosol.

P11088. We have added the Lohmann and Feichter and Forster references.

P11100. We have included a reference to the global mean forcing.

Section 2.4.1. The Mercado reference was already included.

Section 3.1.3.2. We haven't added a discussion of d-albedo/d-CCN, which hasn't been studied specifically and is anyway basic cloud physics.

P11132. We added two dust/IN references.

P11139. We added a reference to present-day direct forcing.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 11087, 2009.