

Interactive comment on “Radiative forcing of the direct aerosol effect from AeroCom Phase II simulations” by G. Myhre et al.

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Response Referee1

Anonymous Referee #1 Review of Myhre et al 2012 “Radiative forcing of the direct aerosol effect from AeroCom Phase II simulations” This paper reports a comparison of the direct radiative forcing due to aerosol from 15 models within the AEROCOM network. It provides quantitative estimates of the radiative forcing due to the aerosol direct effect for both total anthropogenic aerosol, and a range of different aerosol components. Extreme values from individual models are discussed. The relative importance of uncertainties in aerosol optical properties, burden and normalised radiative forcing are also discussed. I anticipate that this paper will be heavily cited as a reference for state of the art aerosol forcing calculations within aerosol models. It also provides very

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useful tables of model components. It is comprehensive, but clearly written. I therefore recommend that it is published in ACP subject only to minor revisions, which are mostly typographical.

Response: We thank for the positive evaluation and useful comments.

Specific points:

Page 22363, line 9-16. The reference to Figure 3c and discussion of single scattering albedo here seems rather out of place. I think it would be better to discuss all panels of Figure 3 here before using them to explain the positive RF at high northern latitudes. Also, does single scattering albedo need to be defined?

Response: The text has been modified with no mention of single scattering albedo in the discussion of Fig 2.

Page 22364 line 1. The text discusses a low single scattering albedo near the equator resulting from a strong AAOD peak which is not accompanied by a strong maximum in the AOD. Please clarify what is responsible for this feature.

Response: The following sentence is added: ‘This pattern is caused by large BB emissions of BC and OA in this region.’

Page 22371, line 4 Change “Although” to “However”

Response: done

Page 22372 line 13. Missing “.” After Eastern US

Response: done

Page 22375 line 13 “ The total RF of DAE is more strongly negative: : :”

Response: done

Page 22375, line24-25. The phrasing here isn’t quite clear. Do you mean that the main estimates are robust across Phase I and II?

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Response: The sentence is slightly rewritten and one additional sentence is added to clarify this issue. The added sentence is as follows: 'This is both with respect to mean estimates and uncertainty range, with the main exception that the BC RF from FF and BF is substantial stronger in Phase II compared to Phase 1.'

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 22355, 2012.

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