

Interactive comment on “Detecting the influence of fossil fuel and bio-fuel black carbon aerosols on near surface temperature changes” by G. S. Jones et al.

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Reply to D. Shindell comment on ‘Detecting the influence of fossil fuel and bio-fuel black carbon aerosols on near surface temperature changes’ by G.S. Jones, N. Christidis and P.A. Stott By G. S. Jones

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Response to D. Shindell Comments:

General comments

P20923,L16: We have changed the example of fossil fuel source of BC to "diesel and

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coal"

Section 2: We have added the lifetime of fBC in HadGEM1 (15 days) and the burden in 2000 (0.33Tg) and compared with the AeroCom simulations.

P20928, L14-16: We have clarified that the fBC and BB aerosol datasets were produced by Toru Nozawa (NIES) with the historic period based on a variety of agricultural, emission and energy databases (as explained in Takemura 2005) and the future period deduced from projected population, fuel usage and land use changes (as discussed in Roeckner 2006). We have changed the wording of part of the sentence from "use of the A1B scenario" to "choice of" to avoid any confusion and to emphasize that here we are discussing the uncertainty in the forcing factors to the choice of datasets for the post 2000 period.

P20931, L28: In the paper we have tried to be clear which sources of BC are used in different studies we refer to, as the studies concentrate on different combinations of sources and aerosols. We have clarified that the "true forcing" is deduced from fossil fuel and biofuel sources of BC and that the IPCC range is from fossil fuel only sources of BC and have added that it is in the middle of the range of the BC forcing from all sources as given in table 2.5 (IPCC 2007). A more direct comparison is not possible as we do not have the forcing for fossil fuel alone.

References

T Takemura et al., Simulation of climate response to aerosol direct and indirect effects with aerosol transport-radiation model, Journal of Geophysical Research, 2005

E Roeckner et al., Impact of carbonaceous aerosol emissions on regional climate change, Climate Dynamics, 2006

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