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Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Quantifying immediate radiative forcing by black carbon and organic matter with the Specific Forcing Pulse" *by* T. C. Bond et al.

**Anonymous Referee #3**

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So far, short-lived climate forcers have been excluded from a regulatory policy because their impact on climate is extremely sensitive to the geographical location of their emissions and their short lifetimes make it difficult to compare their impact with that of a long-lived GHG. The authors have presented a new metric for quantifying and comparing the climate impact of SLCFs to facilitate their inclusion in a climate mitigation policy. Several reviewers have already provided very constructive comments on the manuscript. I have only a few general comments below

1. Since the definition of SFP excludes long-lived GHGs, I find it difficult to assess its usefulness as a metric for including SLFCs in a multi-gas abatement strategy for

climate change mitigation, in agreement with Reviewer 1. Perhaps the authors could provide an example of how SFP for BC could be applied for trading.

2. I do agree with other reviewers that the manuscript is very difficult to read and understand. For example, on page 15716 “Some estimates (Jacobson, 2001) . . ...IPCC’s fossil fuel estimate of +0.2 Wm-2.”, I had to look up Chapter 2 to understand that the authors were talking about radiative forcing due to fossil fuel BC.

3. The definition of SFP is extremely confusing in section 2.2. The authors define SFP as the “energy (joules) added within a specific region, rather than power (watts, energy per time) or radiative forcing (watts per area).” In equation 1, if fs is the net change in energy flux per mass (Wm-2g-1), then how does one obtain SFP in Joules?

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