

Interactive comment on “Two hundred fifty years of aerosols and climate: the end of the age of aerosols” by S. J. Smith and T. C. Bond

Anonymous Referee #1

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I have read the paper "Two hundred fifty years of aerosols and climate: the end of the age of aerosols" by Smith and Bond. The authors describe past and future aerosol emission scenarios and corresponding forcing pathways based on an uncertainty assessment. It provides a useful compilation of recent studies on uncertainty in aerosol forcing. The analysis of the relation between greenhouse gas and aerosol forcing is interesting and well presented. I have only some minor comments and questions.

Specific comments:

P6424 line 1-3: Does the carbon price also lead to higher energy efficiency and thus
C4489

less energy consumption? This would further decrease fossil fuel use and thus aerosol emissions.

P6424 line 10: What exactly does "reversal of deforestation trends" mean? Is there only less deforestation or also afforestation? To which extent? Does this affect aerosol emissions?

P6427 line 15-17: It would be helpful to specify "climate implications". Does this relate only to temperature or also to e.g. precipitation?

P6433 line 3-16: The considered studies seem to include sulfate, carbonaceous aerosols, cloud indirect effects, nitrate, mineral dust, land-use albedo, and stratospheric water vapor changes. The authors chose to subtract nitrate and mineral dust, but not land-use albedo and strat. water vapor. This should be explained and justified. It should also be clarified in the caption of Table 2 which forcing agents are included.

P6436 line 5: "land-use emissions" -> include "aerosol", CO₂ may have a larger effect.

Technical comments:

P6437 line 14: "with is projected decrease" there seems to be a typo somewhere

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 6419, 2013.