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Interactive comment on “Atmospheric effects and societal consequences of regional scale nuclear conflicts and acts of individual nuclear terrorism”

by O. B. Toon et al.

Anonymous Referee #2

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This paper evaluates the potential effects of hypothetical nuclear conflicts on the emissions of smoke and associated particulates into the atmosphere. There are many assumptions made in the paper, but the authors provide a strong basis for the choices made. The paper is well written and should be published. However, since this is really the first major work on nuclear war effects since the "nuclear winter" studies made by many researchers in the 1980s, I think it would be valuable to add a short review of those earlier studies and how the picture has changed since then, both in terms of the type of likely conflicts as inferred in this paper and in terms of the estimates of the smoke and particles emitted.

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The results of this paper are used as the basis for the companion paper by Robock et al. that examines the resulting effects on climate. This paper stops at the emissions of smoke and particles – I wish it were extended to provide more discussion on the resulting loading and distribution of the smoke and other particles in the atmosphere, as well as any other potential impacts on the chemistry in the atmosphere. While this would perhaps make the paper too long, it would provide more of a sense of completeness before going to the claimed effects in the companion paper.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, 6, 11745, 2006.

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