

Interactive comment on “Global indirect aerosol effects: a review” by U. Lohmann and J. Feichter

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Response to reviewer 2:

General point: Because the semi-direct effect describes changes in cloud properties in response to absorbing aerosols, we feel that it needs to be part of our review. We will add an explanation in the introduction.

Specific points:

p.7565: We will rewrite the paragraph that discusses the Feingold et al. (2003) paper.

p.7567: True, the large indirect effect by Menon et al. (2002a) are not entirely due to their use of an empirical scheme. It could also be caused by their assumptions of background aerosol concentrations or their cloud microphysics scheme. We will expand this point.

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p.7575: This is actually not true in our simulations, we find a decrease in magnitude in both the shortwave and longwave cloud forcing in response to Pinatubo because the cloud cover is reduced. Moreover, the ice clouds are displaced to lower altitude, which reduces the longwave radiative forcing additionally. We prefer to not add this rather detailed explanation given that it is discussed in Lohmann et al. (2003).

p. 7582, lines 5-10: We fully agree and meant for our discussion to reflect this fact. We will reword this discussion.

p. 7582, lines 13-14: Good point, we will add that.

p. 7585: The point is well taken. We will expand our discussion on that.

Figure 5: The figure will be changed to a conceptual figure, which indeed is better suited here.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 7561, 2004.

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