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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Clouds, photolysis and regional tropospheric ozone budgets" *by* A. Voulgarakis et al.

Anonymous Referee #1

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Voulgarakis et al. present a global modelling study of the effects of clouds on the global and regional budgets of tropospheric ozone. The manuscript is generally quite well written, and contributes to an important area of uncertainty in the field of earth system modelling. I recommend that the manuscript be published in ACP with minor modifications.

page 13896, line 20: If I understand correctly, your model is fully offline, so any changes in the downward transport of ozone are not due to changes in the circulation related to clouds, but rather due to changes in the vertical ozone gradient due to increased net production aloft. I think it might be worth making this point explicitly in your text to avoid confusion.

page 13898, lines 14+15: remove the $\pm$ signs.

page 13900, line 21: I'm not sure it makes much sense to refer to a "global tropospheric isoprene lifetime" for such a short lived chemical compound which is barely transported away from its source regions. I suggest you refer to the lifetime of isoprene directly over the isoprene source regions.

page 13900, line 24: "South America and South East Asia." No verb in this sentence.

page 13902, line 12: "more greatly"?

page 13902, line 18: Please define "PERT_O3-20".

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 13889, 2009.