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Comment

## ***Interactive comment on “Present and future impact of aircraft, road traffic and shipping emissions on global tropospheric ozone” by B. Koffi et al.***

### **Anonymous Referee #2**

Received and published: 8 September 2010

This paper discusses the specific role of the transport sector (and its split between air, land and sea) on atmospheric chemistry in 2000 and 2050. This is a relevant study that should be published after the authors address the various comments and questions.

#### Main comment:

The paper lacks clarity in exactly what the authors are discussing. The terminology can be quite vague throughout the paper, making it difficult for the reader to know if the authors are describing the role of the transport sector only or the overall changes in emissions. I would strongly encourage the authors to read their paper carefully and make sure that any discussion of impact is well-defined. What is actually being

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discussed? Maybe the use of acronyms would help.

Comments:

Page 15756, line 11: change “amoderate” to “a moderate”.

Page 15756, line 12: nothing can be expected, only projected.

Page 15756, line 14: change “adrastic” to “ a drastic”

Page 15757, line 16: change “sensitivity” to “sensitive”

Page 15758, line 9: “increasing” over what? This is what I refer to in my main comment.

Page 15758, line 24: “better” than what?

Page 15760, line 29: change “given” to “specific”

Page 15762, line 23: there is a need for reference to the final QUANTIFY emissions

Page 15764, line 5: it is unclear if the met. fields are exactly the same in all the perturbations simulations. Also, regardless of the change in stratospheric ozone, strat-trop exchange will still be affected by changes in the vertical circulation across the tropopause.

Page 15765, line 8: which “activity”?

Page 15765, line 20: refer to Table 1.

Page 15769, line 16: is it only the ozone perturbation that does not affect the climate? How do you separate?

Page 15769, line 26: change “most recent emission data” to “our base inventory”.

Page 15770, line 8: the whole discussion of NO<sub>x</sub> titration is very resolution dependent and the resolution of LMDz is quite coarse. This has to be discussed here. I would guess that the resolution used here leads to less titration than in the real world.

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Page 15770, line 14: define how the tropospheric column is computed.

Page 15770, line 25: “Land-based emissions” of what?

Page 15771, line 2: remove “latitude”

Page 15772, line 9: rewrite “corresponding to over”

Page 15775: this whole discussion is quite repetitive. Try shortening.

Page 15779: Figures 9 and 10 are quite noisy. Are the differences shown statistically significant or is it just a display of internal variability and changes in circulation.

Page 15781: One needs to split the discussion of Table 4 into more details. As it stands now, the authors are comparing apples and oranges.

Page 15782, line 15: “aviation becomes the main tropospheric ozone perturbation factor”. Is that really true?? Or does “perturbation factor” have to be more appropriately qualified?

Page 15783, line 16: rewrite sentence starting with “Nevertheless”. It does not quite make sense as written.

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Interactive comment on Atmos. Chem. Phys. Discuss., 10, 15755, 2010.

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