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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Medium-range mid-tropospheric transport of ozone and precursors over Africa: two numerical case-studies in dry and wet seasons" *by* B. Sauvage et al.

Anonymous Referee #2

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The author's objective in writing this manuscript is to explain the transport characteristics which cause ozone maxima in the MOZAIC profiles above Lagos, Nigeria in both dry and wet seasons. They have a done a very good job of explaining these maxima through use of a mesoscale dynamical model and associated back trajectories. It appears that both local pollution and regional transport of biomass burning pollution are responsible for the observed ozone and CO peaks. Using the trajectories and model wind, potential temperature, and humidity fields, the authors diagnose the transport dynamics for each peak on the ozone profiles. The model performed better in comparison

with measured profiles (at Lagos) of winds and temperatures in the dry season then in the wet season. However, regionally the model appeared to generate reasonable patterns. Given the paucity of observed data in this region of the world, I am surprised that the model did as well as it did. I would recommend publication of the paper following a few minor improvements which are listed below.

A couple of general comments concerning the text and figures: I thought that issues concerning English expression were to be caught in the first phase of the ACPD review process. They do not appear to have been. There are several locations (listed below) where the English wording should be improved. Please make the figures larger such that are more easily readable.

p. 4675: An explanation of the various flow regimes is given here. However, I would recommend that a map be included which shows these flow regimes in schematic form. This would help the reader in interpreting the text.

line 5: radiation instead of radiations

p. 4676: lines 9-11: point out that answering this question is the main objective of this paper.

p. 4679, line 17: superimposed on

p. 4680, line 7: cluster instead of bunch

p. 4681, line 4: a meridional instead of meridian; line 26: cluster instead of bunch

p. 4682, line 3: reproducibility instead of reproductibility

p. 4683, line 9: is used to obtain the precise history; line 26: sensitivity instead of sensibility

p. 4684, line 2: I would think that this line should read "the model severely underestimates wind speed..."

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p. 4686, line 10: carbon instead of carbone; line 24: southern instead of sourthern

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 4673, 2007.

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