

Interactive comment on “Impact of Manaus City on the Amazon Green Ocean atmosphere: ozone production, precursor sensitivity and aerosol load” by U. Kuhn et al.

Anonymous Referee #2

Received and published: 1 July 2010

The manuscript Impact of Manaus City on the Amazon Green Ocean atmosphere: ozone production, precursor sensitivity and aerosol load by U. Kuhn and co-workers is an excellent written and structured paper. I also want to point out the fantastic job the authors did in the review of the literature; the manuscript presents on many topics discussed a comprehensive overview what has been done. One critical point as has already mentioned by the other referee is the length of the paper, which is on the edge and I also recommend shortening it. Below are some advices to cut the length of the manuscript which could be easily worked out and in agreement with referee 1. After considering the small comments from both referees I would strongly suggest to publish this paper in ACP.

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Comments for shortening:

Chapter 3.6: The paper already includes many scientific very interesting topics and it would not decrease the value by leaving the aerosol chapter (3.6) complete out. This chapter about aerosols in the Manaus plumes could be easily formed to a second manuscript by including some model simulation with an aerosol dynamic model. As it is included now it only shows some measurements of CN and CCN with some more or less hypothetical assumptions but not any extra scientific results. If this would be acceptable for the authors they should also delete the aerosol part in the introduction (page 13096 line20 – 13097 line 27).

Chapter 3.7: I do not see any need to repeat all the theory of the model in the beginning of this chapter as all this was already discussed before and would start direct on page 13128 line 24.

Other comments:

Page 13108 line 22: The authors mentioned that background aerosols are elevated relative to truly unpolluted pristine rainforest values and conclude that because this measurements were performed downwind of Manaus region where true background values could not be reached. On the other side they mention that CO values are at the lower end of CO concentrations in the CBL observed during the campaign, which indicates that this flight fell into a relatively unpolluted period. I cannot understand why we should get more dilution of aerosols in the plume and outside compared to CO and this needs to be better explained as it is done on page 13106 at line 1-4. This stands also in conflict with the statement page 13114 line 24: all eplume components are expected to be equally affected by plume dispersions in the BL Also by viewing figure 5 the values at the edge seem to be much lower (green color) as shown in figure 3.

Page 13111 line 12: rations -> ratios

Page 13120 line 26: ... in the boundary layer of above tropical forest ... -> remove of

C4674

Figure 8: CCN_06 there is one space should be removed

Figures 14-19: It would be easier for the reader if the measured values would be included in the model plots so it is not always necessary to check what was the concentration of the selected parameter when viewing the model outcomes.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 13091, 2010.