

Interactive comment on “Chemical and aerosol characterisation of the troposphere over West Africa during the monsoon period as part of AMMA” by C. E. Reeves et al.

Anonymous Referee #2

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This is a well written overview of the experimental results of a aircraft measurements during the monsoon season 2006 over Africa. As the authors remark there are not many such measurements in this region- and I appreciate the particular efforts to provide a coherent synthesis of the results from the various aircraft. This alone warrants publication in ACP. Nevertheless, I feel the paper is a little short on the interpretation of the results, in particular: were there particular hypothesis tested (beyond 'characterisation'), and did the results confirm these or not. While I understand that the goal of the paper is not to perform a full model analysis, I would appreciate if the measurement results could be brought out in terms of challenging (or confirming) literature results. Some of this has already be done (e.g. section 4.6), but unfortunately rather

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superficially. Some of the key results of the paper (S-shape ozone mentioned to be consistent in the text but not in the abstract, intrusions from stratosphere, relationships with biomass burning, large dust even in the wet season: is this something to be expected or rather novel. I would appreciate if the revised version would provide some more context, while recognizing that other papers (which ones?) will go in greater detail. I hope the authors will be able to address these comments.

minor: p. 7118 l. 14 lifetime of SOME greenhouse gases. p. 7121 l. 2: which ones? p. 7122 section 2.3 what was actually the strategy behind the flight planning (science questions). p. 7124 While very important I think quite some material of section 3 could go into an appendix. For most readers it will be only important to know that cross-calibration has been carefully done. p. 7128 Section 4; this section could mention which measurements will be covered in more detailed studies, and give some hints on agreement or not. p. 7134 l. 27; and what did the Barrett study tell? p. 7136 l. 3 Is there also an issue how this long range transport interacts with convection? p. 7143 in the conclusion it is mentioned that SOA might or might not be consistent with models, but I don't really find a clear analysis in 4.6

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