

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 #1

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General Comments: In general, the discussion paper is of good scientific quality. It is an overview paper, so a lot of new information is not necessarily expected, and this paper did not diverge considerably from that expectation. However, some new information regarding the vertical profile of both trace gases and aerosols over western Africa was presented. The paper was well written and also organized well. The paper should definitely be published in my opinion. There are only a few minor issues to be addressed before that may occur.

Specific Comments: Should the other papers coming out of the campaign be referenced in the Introduction section?

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Page 7139, line 10: the range of aerosol radii given, 0.1–5 μm , is attributed to mainly dust aerosols; however, this is a very broad range of sizes and would, therefore, be due to virtually all types of aerosols.

The conclusions drawn regarding new particle formation in MCS outflow and based on the data shown in Fig. 17 are based on very limited data (especially with respect to long periods after MCS outflow) and, in my opinion, are not substantiated adequately. Significant gas to particle formation at these altitudes seems questionable and should be corroborated by greater evidence.

Technical Corrections: Line 9: “detailed” should be changed to “detail”

What is the purpose of the “a’s” in the SOP labels in Table 1, e.g., 1a, 2a1, etc.? They seem superfluous.

There should be a horizontal line separating the yellow cells in Table 1 for the D-F20 and the M55.

The meaning of the numbering scheme for the IOP’s in Table 2 is not evident in the table or the caption.

I believe there is a closing parenthesis missing from the opening one begun on line 17.

The units on Operating Altitude in Table 1 should be in km.

Page 7122, line 7: this is not a sentence.

“(TEJ)” should follow Tropical Easterly Jet in the second paragraph of the Introduction.

Please provide a reference for the MODIS tree cover data (page 7122, line 20).

References to flight altitudes in ft in Section 3 should be changed to km.

Figure 2: what is “nc” that is on the axes of the figure? Also OZMR should be ozone or ozone mixing ratio and the units should be ppbv.

Figures 3, 4, 7: “a” and “b” are not labeled on the figures themselves.

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Page 7129, line 15: “ppb” should be “ppbv”. Both are used throughout. One or the other should be used consistently.

Figure 10: please label the figures “a”, “b”, “c”, and “d”

Figure 12: What is meant by “Biomass” particles? Carbon is another category, but I’m assuming that is elemental carbon, while biomass is organic carbon. Is this the case? If so, please describe them as such.

Page 7136, line 19: “specially” should be “especially”

Page 7139, line 4: “yield” should be “yielded”

Page 7140, lines 26-27: Fig. 15a and 15b are referred to in the text, but the “a” and “b” are not in the figure caption.

Figure 16: the caption states, “The right panel does not include 10- and 25- percentile because not significantly different from zero for all altitudes.” I believe this refers to the middle panel, not the right panel.

Page 7145, line 6: the statement, “This can also be seen in Fig. 16” seems redundant.

Figure 17: What does UCN stand for?

Page 7146, line 9: “very” should be removed

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 7115, 2010.