

## ***Interactive comment on “Two years of Ozone radio soundings over Cotonou as part of AMMA: overview” by V. Thouret et al.***

### **Anonymous Referee #1**

Received and published: 10 June 2009

#### Summary.

Thouret et al. present an overview of 2 years of ozone sonde data over west Africa, and explore causes of the observed variability. The dataset is an interesting and useful contribution. I see no major scientific issues. The writing can be improved. Once the following comments are addressed, I recommend publication in ACP.

#### Comments.

The paper is overly verbose. I suspect that just through careful editing and succinct prose it can be cut by 30% with no loss of information content. This will improve readability and allow readers to get to the key points more quickly.

Along similar lines, please provide clear “take-home” points throughout the paper.

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Many of the sections seem to ramble through long lists of numbers and comparisons, without providing a point and key findings along the way.

11227, L18-20, and elsewhere. Please avoid statements like “fairly good agreement” and “pretty good agreement”. What do you consider “fairly good”? Is “pretty good” better than “fairly good”?

Please define at the outset SOP and EOP and how they differ (does one refer to soundings and one to aircraft?)

11224, L21 – “that has not been sampled previously”, clarify “in this region”.

11228, L2 – “to be a reference for the ozone distribution throughout the troposphere and the lower stratosphere.” Clarify “over west Africa” or something similar.

11229, L8. “observed in JJA and DJF”. I don’t see this. E.g., October looks as bad as January or February.

11229, L8-9 – “It is worth noting. . .” Why is this worth noting? Do you conclude something from this?

11229, L15-19 – Please clarify what you mean here and what you take from all this. Are you concluding that the differences are real and not artifact?

11234, L21 – “+/- 0.4” is this range or SD?

11236, L1 – clarify “first in situ data set”

11237, L19-20, and elsewhere. “showing a lower (higher) amount of ozone in 2005 (2006).” This is unnecessarily awkward. “showing a lower amount of ozone in 2005 than 2006.”

11240, L21. “good agreement . . . interannual variabilities” No, actually the variability seems much less in OMI/MLS.

11241, L12-20. This does not “confirm” the low sensitivity of OMI in the boundary layer.

Clearly if the sonde dataset is higher, and you subtract some part of the column from it, then you'll get better agreement, no matter which part of the column you subtract. If you wish you can say it is "consistent" with the low sensitivity of OMI in the BL.

Minor grammatical flaws throughout. For example, 11222, L11 - "inter annual" vs. "interannual" ", L15 - "ozoneenvironments" 11232, L2 - "2 on 8" should be "2 of 8 days" 11233, L9 - "presents on overview" 11235, L13 (and elsewhere) - "but with a lower amplitude though". Delete "though".

All of the figures need help: Fig 1 - low resolution Fig 2 - clarify in caption that points are +/- 1 SD from monthly mean Fig 3 - too much white space. All axes are the same; could improve visibility by deleting axis labels except for the left and bottom plots, and squish panels closer. Figures 4-7 - labels and axis text too small. Fig 8 - This should be redone. Axes hard to read. Strange and misleading use of error bars. Confusing to the eye since one assumes y-axes for top and bottom panels are the same, but one is ozone / wind speed and the other is latitude. Figures 9-11 - labels and axis text too small. Fig 13 - please clarify somehow which year each bar represents.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 11221, 2009.

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