

Answer to Reviewer 1 :

Authors are thankful to this reviewer. His/her comments will definitely help to improve the quality of the manuscript.
Below are the answer to each specific points.

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

We have tried as much as we could to reduce the length. We have rephrased some of the long sentences. However, it seems impossible to reduce by 30 % especially because the other reviewer asks for additional references.

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”?

We actually removed all the «fairly» and «pretty» in the revised manuscript.

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

This is done in the revised manuscript in the introduction. SOP stands for Special Observation Period and actually refers to the period of aircraft operation. EOP stands for Enhanced Observation Period and refers to the radiosoundings operation period.

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

This is clarified in the revised manuscript.

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

This is clarified in the revised manuscript. We have added «over West Africa».

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

The reviewer is right. However, we wanted to point out the specific behavior of JJA and DJF. We have added «especially» before «observed in JJA and DJF»

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

We have removed all the «It is worth noting» in the revised manuscript.

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?

We have reformulated this way : «As there is no overlap in the sampling periods, we cannot conclude on differences or bias between instruments. Given that the strongest differences are seen in DJF and JJA when ozone maximize in the lower troposphere, the interannual variabilities of the processes leading to ozone enhancements (emission and transport of biomass burning products) may explain most of these 20%.”

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

This is SD and is clarified in the revised manuscript.

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

This is done in the revised manuscript.

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.”

The reviewer suggestion has been taken into account. This is rephrased in the revised manuscript.

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

The reviewer is right. We have reformulated this way : «The comparison shows a good agreement between ozonesondes and OMI/MLS tropospheric columns. In particular they both agree for smaller values in May 2005 and 2006 and September 2006. Although similar, amplitudes of the seasonal cycle and interannual variability seem weaker in OMI/MLS data set. During the 26 month period, the highest tropospheric ozone amount over Cotonou was measured in December 2005 by the ozone soundings. This extreme value is also reported by OMI/MLS, but to a lesser extent though.»

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.

The reviewer is right. We have reformulated as suggested.

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”.

This is done in the revised manuscript.

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.

All the figures have been reprocessed to answer these points and are now included in the revised manuscript.