

Manuscript: acp-2018-420

Title: Aerosol liquid water content in the moist southern West African monsoon layer and its radiative impact

Dear Dr. Deetz,

I have read through your manuscript and your response to the reviewers. It is clear that you have worked hard to address all of the reviewer concerns. Furthermore, I agree with both reviewers that the manuscript contains novel and useful research and is thus worthy of publication in ACP. There are however, a number of minor concerns remaining that should be addressed before the manuscript is completely ready for publishing. These are listed as below. Please be sure when you upload your responses that you use track changes as this facilitates my evaluation of your response to the authors. Some of the comments below may simply be due to the fact that I couldn't track down your response.

1. Referee #2 raises an important concern regarding the number of figures being utilized in the paper, as well as the related explanations. This is my primary concern regarding the current manuscript. You currently have 26 figures. I understand the authors' response regarding the need for additional figures related to the additional analysis of 6-7 July, but I would encourage you to assess where you can combine figures. For example, you might want to combine those figures that are the same from each case study (panel a and b). This facilitates direct comparison and you can always come back to the second figure later on in the discussion if need be. Furthermore, this then leads to a more cohesive discussion when comparing the output.
2. Referee #1 enquires in point (7) about why OC dominate the aerosol mass composition. You provided an answer in your response but I would include some of this response in the actual text. Other readers are likely to ask the same question.
3. Referee #1 asks about the total column water. Your answer is sufficient and I note that you have a statement to this effect in the manuscript, however, it would be useful to simply include in brackets the actual heights over which you have done this.
4. Both Referee #1 and #2 raised several questions about how various processes or setups are represented in the model. As a modeler myself, I am in the same position as you in that there are extensive documents describing the model physics. However, it is most helpful to readers to include a short description of those settings that are particularly pertinent to the current study. It only needs to be about a paragraph long but it typically makes an enormous difference to the readability of the paper.
5. Referee #2 asks about the RH comparisons in their point 2. As a reader I would have asked the same question. I suggest that you include a statement as to why these radiosondes were used, and why you did not draw on other measurements, similar to your response to this referee. This is important given the central role of RH to this study. Such a description strengthens your study methodology.
6. Referee #2 requested information about the dynamic of the Atlantic inflow. While the mechanisms have been described in your related study (Deetz et al 2018) and you refer to this manuscript appropriately, I think that it would be beneficial to include 2 sentences in the current manuscript summarizing your response to this request.

7. Finally, Referee #2 was seeking for more of a physical explanation and / or interpretation than appears in the manuscript in their point (5). The authors' response is certainly insightful and it would be useful to include more of these details (and any others the authors may think are pertinent) in the manuscript.

I look forward to reading your revised manuscript.

Kind regards,

Sue van den Heever