

Stockholm, 1 January 2020

Dear authors,

Thank you for your revised manuscript. The referees had another look at your revised work and added few more minor comments (see online comments from referee #1 and PDF from referee #2). In addition, I added a few more comments below after reading the manuscript once more.

Your manuscript will be ready for ACP after these minor comments have been thoroughly considered.

Thanks and kind regards

Paul.

Comments:

- Abstract: I agree with referee #2 that the abstract could be improved by writing it in a more compact way and highlighting the main results of this work.
- Page 3, line 19: Mention once more that you state median and standard deviation (usually people state the arithmetic mean together with the standard deviation, so this could potentially be confusing to the reader).
- Page 3, line 22: These sentence reads difficult. Maybe replace "feature" by "contain". In addition, add some more references if it is really "well understood".
- Page 4, line 10: Please add the ACPD reference for the Pinxteren et al. paper, which is already in ACPD.
- Page 7, line 11: Here and throughout the manuscript (e.g. page 10/line 4, page 14/line 14, page 16/line7, etc.): The beginning of the sentence should not start with abbreviations of section, equation, figure, etc. and the abbreviations should be harmonized within the text. Please have a look at: https://www.atmospheric-chemistry-and-physics.net/for_authors/manuscript_preparation.html
- Units: I'm a bit confused about the units. In Figure 1, you show '[# L^{-1,water}]' for the INP concentration within SML and UWL samples, while for the air samples you give '[# std L^{-1,air}]'. What does the 'std' stand for? Standard deviation? Standardized to STP? I guess later one since it is not shown for the water samples but then it should be behind the unit of liter of air. Please clarify this in the text somewhere. In addition, I would recommend to keep the mathematical power free of any add-ons like 'air' or 'water'. Maybe just move the 'air' and 'water' into the subscript and e.g. write 'L_{air}⁻¹'.
- Page 17, line 10-16: Strictly spoken there should be units (m³_{water}/m³_{air}) for the volume of liquid cloud water per volume air.
- In general, I would say that the readability of some of the figures would be greatly improved if you would mention the full variable names to the figure captions.
- The conclusion could also be shortened to focus on the actual findings of this study (e.g. by removing the many references to the companion paper, which could be moved to the discussion section).
- The author contributions of Hartmut Hermann and Thomas Müller are missing.

Supplement:

- Figure S6: Aren't these data points already shown in Figure S5?
- Please also consider to improve the figure captions in the supplement by defining all the shown variable names and acronyms once more in the figure captions.