

Interactive comment on “Intercomparison study of six HTDMAs: results and general recommendations for HTDMA operation” by J. Duplissy et al.

Anonymous Referee #2

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This paper reports results of intercomparisons of HTDMAs carried out during joined workshops. The results are covering comprehensively operation and measurements using HTDMAs. Authors also included recommendations and suggestions for design and operation of HTDMAs used during long-term observations. The paper should be published in AMT after the following issues have been addressed.

Title: The title in the present form does not reflect the entire content of the paper. The aspect of recommendations for an optimal design for a HTDMA is not included. One alternative could be: Intercomparison study of six HTDMAs: results and recommendations.

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P128, L 2-5: "... and were never intercompared." - Does this statement refer particularly to the HTDMAs that were used in the study presented here or to HTDMAs in general? In case it refers to the former the sentence should be: "... and they were never intercompared." If it refers to the latter, it is a contradiction to the statement on P129, L7: "... very few intercomparisons have been reported."

P128, L 9-11: Here, in opposite to the title the aspect of the recommendations for the HTDMA operation is missing.

Chapter 2 (Experimental section): The experimental section should be exclusively restricted to description of the used instruments and description of the performed experiments. Therefore I suggest that recommendations and necessary explanations for the recommendations should be presented in a separate chapter (e.g. the consideration to required temperature stability (P132, L 11-24), required residence time (P134 L 5 - P135, L 11), requirements for the measurements of the relevant RH (P135, L 13-P136 L 12), etc.). Furthermore, in the experimental section should be explicitly stated which instruments took part in which experiment.

P130, L 6: The value <15% contradicts to the value stated at P148, L 26 (approx. 33%). Please state the RH in DMA1 for every single HTDMA used in this study taking into account only the dryer implemented in instrument and include that in Table 1.

P139, L 5-19: A detailed description of hysteresis is not necessary. It would be sufficient to state an appropriate reference.

Chapter 4.1.1: In addition to the sizing stability the sizing offsets should be considered that are stated in Table 1.

P148, L 10-11: "In experiment 3 (Fig. 7)..." - Please correct this sentence.

P148, L 13-19: These two sentences contradict each other. Please clarify. What does this mean for the interpretation of the results?

P149, L 2-3: Could you explain in more detail why the value $RH < 15\%$ is recommended

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in particular. Is the value an outcome of detailed studies?

P149, L 20-22: Could you explain in detail why the value 10s is recommended in particular. Is the value an outcome of detailed studies? The statements in the passage P149, L 27 - P150, L6 indicate that no clear evidence could be found for an influence of the residence time at the final RH on the growth factors in this study.

Chapter 4.2/4.3: I would recommend that chapter 4.3 should be included in chapter 4.2.

P161, L 25: The value 0.7% is in discrepancy to the value 0.6% stated earlier.

Figure 2: I would recommend to shorten the figure description. "In example of Panel a, ..." should be implemented in the Text.

Interactive comment on Atmos. Meas. Tech. Discuss., 1, 127, 2008.

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