

***Interactive comment on “Application of a Hygroscopicity Tandem Differential Mobility Analyzer for characterizing PM Emissions in exhaust plumes from an Aircraft Engine burning Conventional and Alternative fuels” by Max B. Trueblood et al.***

**Max B. Trueblood et al.**

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Referee #3 (Dr Robert Howard)

The authors describe well their analyzer system and pertinent application results. The aerosol hydroscopic property measurements are relevant, especially with the inclusion

C1

and comparison for alternative fuels. I highly recommend the paper for publication. I offer the following suggested edits and comments:

We thank the referee for a very thorough review of our manuscript.

–reviewer’s comments (in italic typeset, blue font). –a point-by-point response (in regular typeset, black font)

RC#1 Page 1, Line 20 Replace “fuels” w “types of fuel” RESPONSE #1: We have made that replacement.

RC#2 Page 1, Line 23 “decreased” is spelled incorrectly RESPONSE #2: We have made that correction.

RC#3 Page 2, Line 3 Change “on” to “onto” RESPONSE #3: We have made that correction.

RC#4 Page 2, Line 16 Place a comma after “plume” RESPONSE #4: We have made that correction.

RC#5 Page 2, Line 31 Change “45s” to “45 s” or better, change to “45 seconds” RESPONSE #5: We have made the correction to 45 seconds.

RC#6 Page 3, Line 7 “an ice bath to dry the sample” ... is not fully unclear. Please elaborate. RESPONSE #6: We have made that clarification.

RC#7 Page 3, Line 14: Change “poly-dispersed aerosol was classified” to “poly-dispersed aerosol was classified by size” RESPONSE #7: We have made that change.

RC#8 Page 3, Line 16 Throughout the paper, the tense switches from “was” to “is”. I am not sure the change is always correct. Maybe an expert in grammar should review and make suggestions. RESPONSE #8: We have made these corrections.

RC#9 Page 3, Line 17-18 The word “now” is not necessary and should not be used in this manner in a formal paper. RESPONSE #9: We have made these corrections.

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RC#10 Page 3, Line 20 Suggest that "Valves V2 and V3 can direct ..." be changed to "Valves V2 and V3 are used to ..." RESPONSE #10: We have made these corrections.

RC#11 Page 3, Line 21 Suggest that "Valves V4 and V5 achieve..." be changed to "Valves V4 and V5 are used to achieve..." RESPONSE #11: We have made these corrections.

RC#12 Page 3, Line 25-28 I consulted with colleagues and we are not familiar with the use of the term "thermostat" being used as a verb. Suggest not using the term "thermostated" in a formal paper. RESPONSE #12: We have made appropriate changes.

RC#13 Page 4, Line 5 Add comma after "frequency" RESPONSE #13: We have made that correction.

RC#14 Page 4, Line 6 Change "it(1)" to "it (1)" RESPONSE #14: We have made that change.

RC#15 Page 4, Line 31 Add comma after "Thus" RESPONSE #15: We have made that change.

RC#16 Page 5, Line 1 The word "very" should not be used in a formal paper. RESPONSE #16: We have made that change.

RC#17 Page 6, Line 2 Suggest using a simpler Fig. 1 title with this long explanation in the body text. RESPONSE #17: We have made that change.

RC#18 Page 6, Line 6 "discuss" should be "discusses" RESPONSE #18: We have made that change.

RC#19 Page 6, Line 9 Change "deliver a given diameter Xd particle" to "deliver sample with a given diameter Xd particles" RESPONSE #19: We have made that change.

RC#20 Page 6, Line 10 "initiates voltage sweep" should be "initiates a voltage sweep" RESPONSE #20: We have made that change.

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RC#21 Page 7, Line 11-12 Change "... this calibration is then later utilized ..." to "... this calibration is utilized" RESPONSE #21: We have made that change.

RC#22 Page 7, Line 7 Change "when it is exposed ..." to "... when exposed ..." RESPONSE #22: We have made that change.

RC#23 Page 15, Line 4 Change "will be" to "are" RESPONSE #23: We have made that change.

RC#24 Page 15, Line 22 Change "20nm" to "20 nm" RESPONSE #24: We have made that change.

RC#25 Page 15, Line 28 Change "an existing soot particle to form a hybrid particle that subsequently has a significant water soluble component" to "existing soot particles to form hybrid particles that subsequently have significant water soluble components" RESPONSE #25: We have made that change.

RC#26 Page 16, Line 15 Change "This data is" to "These data are" [Throughout my career, my technical editing staff have required "data" to be treated as plural, regardless of the use. RESPONSE #26: We have made that change.

RC#27 Page 18, Line 13 Change "plots the GF" to "plots, the GF" or, better, combine with the previous sentence using "where" RESPONSE #27: We have made appropriate changes.

RC#28 Page 18, Line 14 Add comma, change "(FT plus THT) the GF is" to "(FT plus THT), the GF is" RESPONSE #28: We have made appropriate changes.

RC#29 Page 20, Line 1 Add colon, change "These findings are (1)" to " These findings are: (1)" RESPONSE #29: We have made appropriate changes.

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