

The authors have reasonably addressed the comments of the two anonymous referees and they have modified their manuscript accordingly. However, numerous alterations are needed for the Main text and Supporting information before the manuscript can be published in ACP.

Main text:

Line 39: Replace "vaporizer of" by "vaporizer of the".

Line 45: Replace "also SOA" by "also the SOA".

Line 81: Replace "be the" by "be that the".

Line 83: Replace "lens, previous" by "lens, the previous".

Line 89: Replace "Therefore, the" by "Therefore,".

Line 95: Replace "and also" by "and are also".

Line 99: Replace "using EC-tracer" by "using the EC-tracer".

Line 111: Acronyms and abbreviations, here "SV" should be defined (written full-out) when first used. Thus, replace "of SV" by "of a standard vaporizer (SV)".

Line 115: Replace "of a standard vaporizer (SV)" by "of a SV".

Line 119: Replace "compositions" by "composition".

Line 122: Replace "measurements" by "measurement" and replace "compositions" by "composition".

Line 123: Replace "those measured" by "measurements".

Line 139: Replace "the Q-ACSM" by "the PM₁-Q-ACSM".

Line 151: Replace "the PM_{2.5} Q-ACSM" by "the PM_{2.5}-Q-ACSM".

Line 154: Replace "of particle" by "of the particle".

Line 159: Replace "the size-selected" by "size-selected" and replace "particle" by "particles".

Line 160: Replace "respectively" by "respectively,".

Line 166: Replace "quantifications" by "quantification".

Line 172: Replace "into liquid" by "into the liquid".

Line 178: Replace "Particle" by "The particle".

Line 186: Replace "include the" by "included the".

Line 195: Replace "with PMF2.exe" by "with the PMF2.exe".

Line 198: Replace "in the both" by "in both" and replace "considering that" by "considering".

Line 199: Replace "(2) small" by "(2) a small".

Line 200: Replace "total organic signals" by "the total organic signal".

Line 204: Replace "supporting" by "the supporting".

Line 206: Replace "However higher" by "However, a higher" and replace "and multilinear" by "and the multilinear".

Line 211: Replace "was predicted" by "were predicted".

Line 225: Replace "except the" by "except for the".

Line 227: Replace "impacts on" by "impacts on the".

Line 228: Replace "fine" by "the fine".

Line 231: Replace "is due to the" by "is the".

Line 235: Replace "by Q-ACSMs" by "by the Q-ACSMs".

Line 242: Replace "between Q-ACSM and TDMPS" by "between the Q-ACSM and the TDMPS".

Line 250: Replace "including" by "including the".

Line 257: Replace "requires to" by "require to".

Line 261: Replace "that Q-ACSM" by "which the Q-ACSM".

Line 265: Replace "chloride" by "the chloride" and replace "explain by" by "explained by".

Line 267: Replace "concentrations also show" by "concentration also shows".

Line 268: Replace "between nitrate" by "between the nitrate".

Line 276: Replace "between" by "between the" and replace "that is" by "that is the".

Line 278: Replace "Fig.3b" by "Fig. 3b".

Line 279: Replace "previous studies generally reported" by "the previous studies generally reported a".

Line 281: Replace "in few" by "in a few".

Line 282: Replace "(with" by "(with a".

Line 290: Replace "up non-OA" by "up the non-OA".

Line 291: Replace "in future" by "in a future".

Line 298: Replace "those by" by "those measured by".

Line 303: Replace "in US" by "in the US".

Line 306: Replace "their large contributions" by "its large contribution".

Line 308: Replace "of aerosol species from" by "of the aerosol species from the".

Line 309: Replace "decrease as the" by "decrease with the".

Line 327: Replace "of PM_{2.5} mass" by "of the PM_{2.5} mass".

Line 342: Replace "entire periods" by "entire period".

Line 343: Replace "loadings during" by "loading during".

Line 345: Replace "contributions to" by "contribution to" and replace "that in" by "that to".

Line 347: Replace "those in" by "that in".

Line 350: Replace "particle in" by "particles in".

Line 369: Replace "by typical" by "by the typical".

Line 372: Replace "shows smaller" by "show smaller".

Line 380: Replace "are dominated" by "is dominated".

Line 382: Replace "be due to the" by "be the".

Line 383: Replace "produce non-OA" by "produce a non-OA".

Line 385: Replace "vaporizer in" by "vaporizer in the".

Line 386: Replace "release" by "release a".

Line 388: Replace "profiles in" by "profiles in the".

Line 389: Replace "also be the potential" by "also have a potential".

Line 392: Replace "on RH" by "on the RH".

Line 397: Replace "the later" by "the latter".

Line 409: Replace "were likely" by "was likely".

Line 411: Replace "increase as the increases" by "increase with the increase".

Line 412: Replace "increases of RH levels" by "RH levels increase".

Line 414: Replace "period with" by "a period with".

Line 423: Replace "variations of" by "variation of".

Line 428: Replace "rest time of" by "rest of".

Lines 431-432: This sentence needs to be rephrased; there is no main verb in it.

Line 436: Replace "reaction might" by "reactions might".

Line 444: Replace "concentrations of" by "concentration of".

Line 445: Replace "show dramatic" by "showed dramatic".

Line 450: Replace "play a" by "plays a".

Line 451: Replace "and it" by "and that it".

Line 458: Replace "with that during" by "with those during".

Line 467: Replace "concentrations of" by "concentration of" and replace "were measured" by "was measured".

Line 476: Replace "had insignificant" by "had an insignificant".

Line 477: Replace "PMF analysis" by "The PMF analysis".

Line 479: Replace "enhanced thermo" by "enhanced thermal".

Line 481: Replace "presented in" by "were present in" and replace "High" by "A high".

Line 482: Replace "and low ALWC was observed during new" by "and a low ALWC was observed during the new".

Line 487: Replace "remained relative" by "remained relatively".

Line 492: Replace "characterization of" by "characterization of the" and replace "compositions to" by "composition to".

Line 495: Replace "by Natural" by "by the Natural".

Line 498: Replace "supports on" by "support in".

Line 499: Replace "the PhD" by "a PhD".

Line 580: Replace "C., and Nenes" by "C. and Nenes".

Lines 810-824: "Zhang, J. K. et al., 2014" should come before "Zhang, Q. et al., 2007".

Lines 832-840: "Zhang, Y. et al., 2017" should come before "Zhang, Y. J. et al., 2015c".

Line 845: Replace "from TDMPS" by "from the TDMPS".

Line 857: Replace "dash line" by "dashed line".

Line 858: Replace "sum mass" by "summed mass".

Line 859: Replace "concentration of" by "concentration of the".

Line 860: Replace "that differences observed between" by "that the difference observed between the".

Line 866: Replace "species from" by "species from the".

Line 867: Replace "to standard" by "to the standard".

Line 868: Replace "solid squares" by "filled circles".

Line 876: Replace "in the (f) are caused" by "in (f) are caused".

Line 882: Replace "(b) of" by "(b) of the".

Line 883: Replace "during different" by "during the different".

Line 888: Replace "inputs, for" by "inputs, for the".

Line 890: Replace ", and" by ", and the".

Line 901: Replace "SOA and" by "the SOA for NR-PM₁ and NR-PM_{2.5} and".

Lines 901-902: If I understand Fig. 9c correctly, then "respectively. Note that more oxidized OOA (MO-OOA) was" should be replaced by "and between the more oxidized OOA (MO-OOA) and O_x. Note that MO-OOA was".

Line 903: This sentence is unclear to me. Which calculation is meant here and in which way were the wet scavenging particles removed? Clarification and rewording are needed.

Line 908: The unit for the "wind speed" should be specified; I presume that it is "m s⁻¹".

Line 912: Replace "and size" by "and the size".

Line 913: Replace "during the two" by "during two".

Supporting information:

Page 2, captions of Figures S1 and S2: Replace "profiles of" by "profiles for the".

Page 3, caption of Figure S3, line 1: Replace "results for" by "results for the".

Page 3, caption of Figure S3, line 2: Replace "of number" by "of the number".

Page 3, caption of Figure S3, line 3: Replace "the box" by "box" and replace "of scaled" by "of the scaled".

Page 3, caption of Figure S3, line 4: Replace "a comparison" by "comparison".

Page 4, caption of Figure S4, line 1: Replace "results for" by "results for the".

Page 4, caption of Figure S4, line 2: Replace "of number" by "of the number".

Page 4, caption of Figure S4, line 3: Replace "the box" by "box" and replace "of scaled" by "of the scaled".

Page 4, caption of Figure S4, line 4: Replace "a comparison" by "comparison".

Page 5, caption of Figure S5, line 1: I do not understand why the word "Correction" is used here. Should it not be "Comparison" instead of "Correction"?

Page 5, caption of Figure S6, line 2: Replace "respectively." by "respectively. The".

Page 5, caption of Figure S6, line 3: Replace "system and" by "system and the".

Page 6, caption of Figure S8, line 1: I do not understand why "and/or" is used here. Should it not just be "and" instead?

Page 7, caption of Figure S9, line 1: Replace "particle" by "particles".

Page 7, caption of Figure S9, line 2: Replace "values of" by "value being".

Page 7, caption of Figure S10, line 1: Replace "between" by "between the" and replace "and" by "and the".

Page 7, caption of Figure S10, line 3: Replace "species of" by "species of the".

Page 7, caption of Figure S10, line 4: Replace "mass reports" by "mass accounts for".

Page 8, caption of Figure S11, line 1: Replace "between measured" by "between the measured".

Page 8, caption of Figure S11, line 2: Replace "in plots" by "in the plots".

Page 8, caption of Figure S11, line 3: Replace "predicted" by "the predicted".

Page 8, caption of Figure S12, line 3: Replace "which chemical" by "which the chemical".

Page 9, caption of Figure S13, line 1: Replace "between" by "between the".

Page 9, caption of Figure S13, line 2: Replace "with estimated" by "and the estimated" and replace "banlance" by "balance".

Page 9, caption of Figure S14, line 1: Replace "(a)" by "(a) the".

Page 9, caption of Figure S14, line 3: Replace "non-refractory" by "the non-refractory".

Page 10, caption of Figure S15, line 1: I do not understand why the word "correction" is used here. Should it not be "correlation" (or "comparison") instead of "correction"? It is also unclear what the unit is in the abscissa and ordinate of Figs. (a') and (b').

Page 10, caption of Figure S15, line 2: Replace "from" by "from the".

Page 10, caption of Figure S16, line 1: Replace "of fine" by "of the fine".

Page 11, caption of Figure S17, line 1: Replace "OA for" by "OA for the".