

## Point-by-point response to comments by Editor

We thank the editor for the detailed comments. We have revised the manuscript accordingly. Below is our point-by-point response to each comment, marked in blue. Changes made to the main text are also marked in blue in the revised manuscript file. By this chance, we would like to show our enormous respect to Dr. Willy for doing such a thorough job to improve our paper.

### For the Main text:

1. Lines 21, 22, 23, 27, 37, 67, 80, 172, 306, 336, 375 (twice), 378, 401, 405, 406, and 407: Replace "i.e." by "i.e.",  
**Response:** revised as suggested. **(Line 21, 21, 22, 23, 27, 37, 67, 80, 172, 308, 337, 377 (twice), 380, 404, 408, 409, and 410)**
2. Line 30: Replace "biasing source" by "biasing the source" and replace "on MM-PMF" by "on the MM-PMF".  
**Response:** revised as suggested. **(Line 30)**
3. Line 32: Replace "and SOA" by "and the SOA" and replace "to PM2.5" by "to the PM2.5".  
**Response:** revised as suggested. **(Line 32)**
4. Line 37: Replace "particulate matters" by "particulate matter".  
**Response:** revised as suggested. **(Line 37)**
5. Line 70: Replace "compositions," by "composition,".  
**Response:** revised as suggested. **(Line 70)**
6. Line 78: Replace "Method" by "Methods".  
**Response:** revised as suggested. **(Line 78)**
7. Line 80: Replace "compositions" by "composition".  
**Response:** revised as suggested. **(Line 80)**
8. Line 86: Replace "Locations" by "Location".  
**Response:** revised as suggested. **(Line 86)**
9. Line 90: Replace "by Monitor" by "by a Monitor".  
**Response:** revised as suggested. **(Line 90)**
10. Line 93: Replace "nondispersive" by "energy-dispersive".  
**Response:** revised as suggested. **(Line 93)**
11. Line 96: Replace "were achieved using a Thermal" by "was achieved using Thermal".  
**Response:** revised as suggested. **(Line 96)**
12. Line 101: Abbreviations and acronyms, here "GC", should be defined (written full-out) when first used.  
**Response:** revised as suggested. **(Line 101-102)**
13. Line 102: Replace "with derivatization" by "with a derivatization".  
**Response:** revised as suggested. **(Line 103)**
14. Line 111: Replace "agreements in" by "agreement in".  
**Response:** revised as suggested. **(Line 111)**
15. Line 128: Replace "specie in" by "species in".  
**Response:** revised as suggested. **(Line 128)**
- Line 132: Replace "of mass" by "of the mass".  
**Response:** revised as suggested. **(Line 132)**
16. Line 137: Replace "for PMF" by "for the PMF".  
**Response:** revised as suggested. **(Line 137)**
17. Line 141: Replace "to PMF" by "to the PMF".

**Response:** revised as suggested. **(Line 141)**

18. Line 142: Replace "anhydro sugars" by "anhydrosugars".

**Response:** revised as suggested. **(Line 142)**

19. Line 143: Replace "and etc." by "etc.".

**Response:** revised as suggested. **(Line 143)**

20. Line 154: Replace "path on" by "paths on".

**Response:** revised as suggested. **(Line 154)**

21. Line 164: Replace "contributing to" by "contributing with".

**Response:** revised as suggested. **(Line 164)**

22. Line 165: Replace "contributed to" by "contributed with" and replace "of PM2.5" by "of the PM2.5".

**Response:** revised as suggested. **(Line 165)**

23. Line 166: Replace "component and" by "components and".

**Response:** revised as suggested. **(Line 166)**

24. Page 8, Tables 1 and 2: Several numeric data are given with too many significant figures; two significant figures suffice and three in case the first one is "1"; thus, for example, replace "46.3" and "33.8" by "46" and "34", respectively, and replace "45.91" and "39.17" by "46" and "39", respectively; also within the text several numeric data are given with too many significant figures; for example, in line 164, replace "46.3±33.8" by "46±34" and replace "32.0% and 25.2%" by "32% and 25%", and in line 303, replace "0.843-0.993" by "0.84-0.99".

**Response:** revised as suggested. **(Page 8)**

25. Line 192: Replace "detail descriptions" by "detailed description".

**Response:** revised as suggested. **(Line 192)**

26. Line 194: Replace "for PMF" by "for the PMF".

**Response:** revised as suggested. **(Line 194)**

27. Lines 196 and 198: Replace "with secondary" by "with the secondary".

**Response:** revised as suggested. **(Line 196)**

28. Line 200: Replace "are given" by "is given".

**Response:** revised as suggested. **(Line 200)**

29. Line 208: Replace "Secondary nitrate" by "The secondary nitrate".

**Response:** revised as suggested. **(Line 208)**

30. Line 219: Replace "The individual" by "Individual".

**Response:** revised as suggested. **(Line 219)**

31. Line 228: Replace "contributed to" by "contributed with".

**Response:** revised as suggested. **(Line 228)**

32. Line 229: Replace "The profiles" by "The profile".

**Response:** revised as suggested. **(Line 229)**

33. Line 233: Replace "with the tire" by "with tire".

**Response:** revised as suggested. **(Line 233)**

34. Line 235: Replace "al.,2013" by "al., 2013".

**Response:** revised as suggested. **(Line 234-235)**

35. Line 236: Replace "to total" by "to the total".

**Response:** revised as suggested. **(Line 236)**

36. Line 248: Replace "in Shanghai" by "in the Shanghai" and replace "diurnal variations" by "diurnal variation".

**Response:** revised as suggested. **(Line 248)**

37. Line 254: Replace "to total" by "to the total".

**Response:** revised as suggested. **(Line 254)**

38. Line 258: Replace "factor ro" by "factor to".

**Response:** revised as suggested. **(Line 258)**

39. Line 259: Replace "Diurnal variations" by "The diurnal variation".

**Response:** revised as suggested. **(Line 259)**

40. Line 262: Replace "contributes to" by "contributes with".

**Response:** revised as suggested. **(Line 262)**

41. Line 267: Replace "of biomass burning factor also ontains" by "of the biomass burning factor also contains".

**Response:** revised as suggested. **(Line 267)**

42. Line 268: Replace "from a mixed" by "from mixed".

**Response:** revised as suggested. **(Line 268)**

43. Line 269: Replace "diurnal variations" by "diurnal variation".

**Response:** revised as suggested. **(Line 269)**

44. Line 272: Replace "diurnal variations of the cooking factor show" by "diurnal variation of the cooking factor shows".

**Response:** revised as suggested. **(Line 272)**

45. Line 274: Replace "contributes to only" by "contributes only".

**Response:** revised as suggested. **(Line 274)**

46. Line 278: Replace "Fig.3" by "Fig. 3" and replace "of toluene" by "of a toluene".

**Response:** revised as suggested. **(Line 278)**

47. Line 280: Replace "represents a mixed" by "represents mixed".

**Response:** revised as suggested. **(Line 280)**

48. Line 282: Replace "and secondary" by "and the secondary".

**Response:** revised as suggested. **(Line 282)**

49. Line 287: Replace "Overall, MM-PMF" by "Overall, the MM-PMF".

**Response:** revised as suggested. **(Line 287)**

50. Line 292: Replace "comonality" by "commonality".

**Response:** revised as suggested. **(Line 293)**

51. Line 294: Replace "accout for" by "account for".

**Response:** revised as suggested. **(Line 294)**

52. Line 295: Replace "contributed the" by "contributing the".

**Response:** revised as suggested. **(Line 295)**

53. Line 297: Replace "PMF model" by "The PMF model".

**Response:** revised as suggested. **(Line 297)**

54. Line 305: Replace "This diffience" by "This difference".

**Response:** revised as suggested. **(Line 305)**

55. Line 307: Replace "for secondary sulfate factor and EC for vehicle" by "for the secondary sulfate factor and EC for the vehicle".

**Response:** revised as suggested. **(Line 307)**

56. Line 311: Replace "than those for" by "than for".

**Response:** revised as suggested. **(Line 311)**

57. Line 313: Replace "contributions from" by "the contribution from".

**Response:** revised as suggested. **(Line 313)**

58. Line 315: Replace "MM-MMPF" by "MM-PMF".

**Response:** revised as suggested. **(Line 315)**

59. Line 317: Replace "distribute contributions" by "distribute the contributions".

**Response:** revised as suggested. **(Line 317)**

60. Line 318: Replace "between two" by "between the two".

**Response:** revised as suggested. **(Line 318)**

61. Line 319: Replace "Coal combustion contribution" by "The coal combustion contribution" and replace "and residual" by "and the residual".

**Response:** revised as suggested. **(Line 319)**

62. Line 320: Replace "generates more" by "generates a more".

**Response:** revised as suggested. **(Line 320)**

63. Line 321: Replace "In another" by "In other".

**Response:** revised as suggested. **(Line 321)**

64. Line 325: Replace "contribution to" by "contributions to".

**Response:** revised as suggested. **(Line 325)**

65. Line 328: Replace "Fig.7" by "Fig. 7".

**Response:** revised as suggested. **(Line 328)**

66. Line 329: Replace "mass originated from northeastern" by "masses originating from the northeastern".

**Response:** revised as suggested. **(Line 329)**

67. Line 330: Replace "of the total trajectories" by "of all trajectories" and replace "account for 36% of the total" by "accounts for 36% of all".

**Response:** revised as suggested. **(Line 330)**

68. Line 331: Replace "of total trajectories" by "of all trajectories" (twice) and replace "air mass and" by "air masses and".

**Response:** revised as suggested. **(Line 331)**

69. Line 332: Replace "air mass," by "air masses,".

**Response:** revised as suggested. **(Line 332)**

70. Line 355: Replace "Briefly, PM2.5" by "Briefly, the PM2.5".

**Response:** revised as suggested. **(Line 335)**

71. Line 336: Replace "air mass influence" by "air masses".

**Response:** revised as suggested. **(Line 336)**

72. Line 337: Replace "air mass" by "air masses".

**Response:** revised as suggested. **(Line 337)**

73. Line 338: Replace "air mass" by "air masses" (twice).

**Response:** revised as suggested. **(Line 338)**

74. Line 341: Replace "by TrajStat model. The percentage in the brackets" by "by the TrajStat model. The percentage in parentheses".

**Response:** revised as suggested. **(Line 341-342)**

75. Line 344: Replace "MM-PMF factor" by "The MM-PMF factor".

**Response:** revised as suggested. **(Line 344)**

76. Line 345: Replace "of individual factor" by "of the individual factors".

**Response:** revised as suggested. **(Line 345)**

77. Line 346: Replace "influences of air" by "influence of air".

**Response:** revised as suggested. **(Line 346)**

78. Line 347: Replace "and vehicle" by "and the vehicle".

**Response:** revised as suggested. (Line 347)

79. Lines 347-348: Replace "regardless air mass cluster types. Secondary nitrate" by "regardless of air mass cluster type. The secondary nitrate".

**Response:** revised as suggested. (Line 347-348)

80. Line 349: Replace "ofNOx" by "of NOx".

**Response:** revised as suggested. (Line 349)

81. Line 353: Replace "need from heating" by "need of heating".

**Response:** revised as suggested. (Line 353)

82. Line 356: Replace "from northern continental area. Vehicle" by "from the northern continental area. The vehicle".

**Response:** revised as suggested. (Line 356)

83. Line 362: Replace "Dust show similar" by "Dust shows similar".

**Response:** revised as suggested. (Line 362)

84. Line 374: Replace "mainly fall under" by "mainly falls under".

**Response:** revised as suggested. (Line 374)

85. Line 377: Replace "than the" by "than during the".

**Response:** revised as suggested. (Line 377)

86. Line 388: Replace "among sources while source" by "among the sources while the source".

**Response:** revised as suggested. (Line 389)

87. Line 391: Replace "in Beijing" by "in the Beijing".

**Response:** revised as suggested. (Line 392)

88. Line 393: Replace "high contributions of" by "high contribution of".

**Response:** revised as suggested. (Line 394)

89. Line 394: Replace "among three" by "among the three".

**Response:** revised as suggested. (Line 395)

90. Line 413: Replace "air mass" by "air masses".

**Response:** revised as suggested. (Line 414)

Line 416: Replace "in Shanghai" by "in the Shanghai".

**Response:** revised as suggested. (Line 417)

91. Line 426: Replace "are suggested" by "is suggested".

**Response:** revised as suggested. (Line 427)

92. Pages 21-25, References:

- for authors with more than one initial there should be a space between the initials;

- titles of journal articles should be in lower case and not in Title Case.

Line 475: Replace "205 226" by "205-226".

Line 550: Replace "Acs. Earth. Space. Chem." by "ACS Earth Space Chem.".

Lines 556-557: Replace "ACS Earth and Space Chemistry" by "ACS Earth Space Chem.".

Line 573: Replace "Kong, china" by "Kong, China".

**Response:** References have been carefully checked and revised as suggested. (Line 437-588)

#### **For the Supplement:**

S1. Line 8: Replace "from PD site" by "from the PD site".

**Response:** revised as suggested. (Line 8)

S2. Line 9: Replace "from SAES site" by "from the SAES site".

**Response:** revised as suggested. (Line 9)

- S3. Line 17: Replace "for general" by "for the general".  
**Response:** revised as suggested. **(Line 17)**
- S4. Line 20: Replace "are similar." by "are similar".  
**Response:** revised as suggested. **(Line 21)**
- S5. Line 27: Replace "in Pudong district" by "in the Pudong district".  
**Response:** revised as suggested. **(Line 28)**
- S6. Line 28: Replace "in Xuhui district" by "in the Xuhui district".  
**Response:** revised as suggested. **(Line 29)**
- S7. Line 30: Replace "are similar." by "are similar".  
**Response:** revised as suggested. **(Line 31)**
- S8. Lines 32, 63, and 71: Replace "i.e." by "i.e.,".  
**Response:** revised as suggested.
- S9. Line 35: Replace "of PM2.5" by "of the PM2.5".  
**Response:** revised as suggested. **(Line 36)**
- S10. Line 37: Replace "at two" by "at the two".  
**Response:** revised as suggested. **(Line 38)**
- S11. Line 42: Replace "in sync" by "in synchrony".  
**Response:** revised as suggested. **(Line 43)**
- S12. Line 43: Replace "at SAES site" by "for the SAES site".  
**Response:** revised as suggested. **(Line 44)**
- S13. Line 49: Replace "well between them throughout" by "well throughout".  
**Response:** revised as suggested. **(Line 50)**
- S14. Line 51: Replace "between two" by "between the two".  
**Response:** revised as suggested. **(Line 51)**
- S15. Line 55: Replace "combined data set to achieve comprehensive" by "a combined data set to achieve a comprehensive".  
**Response:** revised as suggested. **(Line 55-56)**
- S16. Line 57: Replace "at PD" by "at the PD".  
**Response:** revised as suggested. **(Line 58)**
- S17. Lines 64 and 68: Replace "at two" by "at the two".  
**Response:** revised as suggested. **(Line 64, 67, 68)**
- S18. Line 74: Replace "between PD" by "between the PD".  
**Response:** revised as suggested. **(Line 75)**
- S19. Line 75: Replace "during measurement" by "during the measurement".  
**Response:** revised as suggested. **(Line 76)**
- S20. Line 78: Replace "between PD" by "between the PD".  
**Response:** revised as suggested. **(Line 79)**
- S21. Line 79: Replace "during measurement" by "during the measurement".  
**Response:** revised as suggested. **(Line 80)**
- S22. Line 84: Replace "at PD and SAES sites during" by "at the PD and SAES sites during the".  
**Response:** revised as suggested. **(Line 85-86)**
- S23. Page S-5, Table S1: Several numeric data are given with too many significant figures; two significant figures suffice and three in case the first one is "1".  
**Response:** revised as suggested. **(Table S1)**

S24. Line 91: Replace "during measurement" by "during the measurement".

**Response:** revised as suggested. **(Line 92)**

S25. Line 97: Replace "Change of" by "The change of", replace "are often" by "is often", and replace "help factor" by "help in the factor".

**Response:** revised as suggested. **(Line 98)**

S26. Line 103: Replace "examining factor" by "examining the factor".

**Response:** revised as suggested. **(Line 104)**

S27. Lines 104-105: Replace "from secondary nitrate factors" by "and the secondary nitrate factor".

**Response:** revised as suggested. **(Line 105-106)**

S28. Line 109: Replace "Finally," by "Finally, the".

**Response:** revised as suggested. **(Line 111)**

S29. Line 119: Replace "in EPA" by "in the EPA".

**Response:** revised as suggested. **(Line 120)**

S30. Line 124: Replace "there are a" by "there is a".

**Response:** revised as suggested. **(Line 125)**

S31. Line 129: Replace "indicate robust" by "indicates robust".

**Response:** revised as suggested. **(Line 130)**

S32. Line 136: Replace "of BS" by "of the BS".

**Response:** revised as suggested. **(Line 137)**

S33. Lines 141 and 146: Replace "The model" by "Model".

**Response:** revised as suggested. **(Line 142, 147)**

S34. Line 156: Replace "in eight-factor" by "in the eight-factor".

**Response:** revised as suggested. **(Line 157)**

S35. Lines 164 and 165: Replace "The average concentration of PM2.5 and its major components under different clusters" by "Average concentration of PM2.5 and its major components for different air mass clusters".

**Response:** revised as suggested. **(Line 165-166)**

S36. Line 168: Replace "under different clusters" by "for different air mass clusters".

**Response:** revised as suggested. **(Line 169)**

S37. Line 177: Replace "The average concentrations" by "Average concentrations".

**Response:** revised as suggested. **(Line 178)**