

General comments:

The authors have responded to the comments from both reviewers and although the revisions were not major from either reviewer, the authors have improved the manuscript in multiple places. A couple of small revisions are recommended before final publication in ACP.

Specific comments:

Page 7, line 223: Please explain either here or in the supplement what explained variations mean/represent so that it is clear whether a low or high percentage is preferable for the chosen factor.

Reply:

Suggestion taken. Corrected to ‘had obvious percentage explained variation (EV) values, i.e., the percent of a species apportioned to the factor’.

Page 7, lines 221-227: This section is not clear in terms of how the values presented as EVs compare to the figures. In the figures (e.g. Fig. S7), concentration and percent of species are plotted but EV is not.

Reply:

As in the reply to the question above, we have defined that EV is just the percent of species in Figure S7, and we have also clarified this definition in the caption of Figure S7.

Page 11, lines 354-357: The authors should clarify how the SOA factor is extracted. Perhaps clarify by adding text to the supplement or a brief sentence or two in the main text.

Reply:

Rephrased to: ‘However, the contribution time-series of LV-OOA (or SV-OOA) can be extracted based on the contribution time-series of the secondary sulfate-rich factor (or the secondary nitrate-rich factor) and the mass percentage of OM in this factor, leaving the remaining mass as the “pure” secondary sulfate (or secondary nitrate). Therefore, a new SOA factor can be reasonably estimated by LV-OOA+SV-OOA.’

Page 20, lines 581-584: The authors may wish to clarify in the conclusions that the four months of sampling were conducted to represent each of the four seasons during the year thus representing the annual PM2.5 pollution.

Reply:

Corrected to: ‘to conduct four months (one for each season) of sampling...’

Minor and technical corrections:

Page 4, lines 104-105: Remove ‘for’ so the sentence reads ‘the six samplers used

sampled in parallel three times’.

Reply:  
Corrected.

Page 4, lines 106-108: Please rephrase this sentence as it is currently not clear what is meant. Were Teflon filters put into boxes made of the same material? Perhaps the sentence can be simplified or even removed unless this step is critical to the sampling handling process.

Reply:  
Suggestion taken. This sentence is not important and is now removed.

Page 4, line 115: The authors may want to consider writing QA/QC out in full here and elsewhere in the manuscript/supplement to avoid confusion with the ‘QA’ used for the Qi-Ao island site.

Reply:  
Suggestion taken. The ‘QA/QC’ has been replaced with ‘Quality Assurance and Quality Control’.

Page 7, line 210: A space is needed between ‘to’ and ‘12’ to read ‘factor numbers from 3 to 12...’.

Reply:  
Corrected.

Page 8, line 278: Please change ‘well’ to something else, perhaps so the sentence reads ‘...higher in winter and lower in summer, which is consistent with the seasonal variations of monsoon...’.

Reply:  
Corrected.

Page 13, line 378: Change ‘due to its being located’ to ‘due to the site being located’.

Reply:  
Corrected.

Page 14, Table 6: Guangzhou is listed twice in this table as being this study but there are two different periods. Perhaps the authors would like to clarify the exact time periods. Is the 2015.1-2015.11 period actually the four months of study during this whole time period and then the 2015.1-2015.2 is one of those four months?

Reply:

We have pointed out whether it is four seasons or one season below the sampling period in Table 6.

Supplement page 7, Fig. S4: The authors may wish to include axis labels for the latitude and longitude.

Reply:

Corrected.