**Atmospheric
Chemistry
and Physics**
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Discussions

Interactive comment on "Seasonal characterization of submicron aerosol chemical composition and organic aerosol sources in the southeastern United States: Atlanta, Georgia and Look Rock, Tennessee" *by* S. H. Budisulistiorini et al.

Anonymous Referee #2

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General comments The manuscript by Budisulistiorini et al. presents new and interesting data from two years of measurements using ACSM at an urban and a rural site in south-eastern USA. This is a very large dataset and the analysis presents important and new findings. Unfortunately the manuscript needs considerable editing, before submission should be considered. There are numerous spelling errors and grammatical errors, which must be corrected. I have identified some, but it is not the task

of the reviewers to correct spelling and standard grammatical errors. My only other major point is that the authors should remember the limitations of the study, namely that the measurements were performed during two different years. This should be written much more clearly in the discussion of the data. Generally the figures look very good, but they are too small and should be divided into more separate figures to enhance readability. Please describe and use a uniform description of the r2 values (high/low/moderate/low).

Specific comments. Page 22383 line 4: Please include a reference to the statements of sources to sulfate, nitrate and OA.

Page 22383 line 9-10: Please add a reference to the discussion of POA/SOA variation during the day.

Page 22383 lines 13-16: Please add a reference here.

Page 22383 line 29: Anthropogenic sources might be low in rural areas, but they are not "absent".

Page 22384 Lines 7-8: Please clarify this sentence.

What is the distance between the sites?

Page 22384 Line 16: collocated -> co-located.

Page 22385 Line 23: Please state how often the calibration procedure was done.

Page 22387: The results and discussion should start with a somewhat broader presentation to introduce the data, including some average concentrations.

Page 22388 line 11: Please correct language here. How close are the coal-fired power plants? Given the time-scale for sulfate formation, would you expect them to contribute to sulfate at your sites?

Page 22389: in accord with -> in accordance with? The word "correlation" should only

be used if you actually calculated the correlation of the data. did you do that? Which technique did Guo et al. use – please state.

Page 22390 Line 14: Specify "during fall and winter". Is this only referring to JST site? Line 20-21: r^2 = 0.2-0.5 is not moderate, but low.

Page 22391 line 19: "most abundant component of OA" Lines 25-: Please correct and clarify this sentence.

Page 22393 lines 10-12: This sentence needs further editing to be clear.

Page 22394 line 2: r^2 of 0.2 is very weak, approaching non-existent.

Page 22394 lines 20-21: What do you mean here?

Page 22395 line 4: Please clarify/use correct language.

Page 22396: Avoid repeating the results presented in the very long section above. Furthermore the discussion should reflect the fact that the data were collected in two different years.

Page 22397 line 13: The argument about "loss of foliage as a major source of isoprene emissions" is unclear. Line 23: What are "sources datasets"?

Page 22398 lines 18- . Please remove and replace "we offer" with eg. "the study presents". line 22: identification -> detection.

Page 22399 lines 9-14: This is very speculative, given the quite similar correlations.

Figure 6 does not provide enough information to include it in the main manuscript. Please move to SI or leave out.