

Interactive comment on “Organosulfates in Atlanta, Georgia: Anthropogenic influences on biogenic secondary organic aerosol formation” by Anusha Priyadarshani Silva Hettiyadura et al.

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Anonymous Referee # 2, General Comments: “The study examines the influence of anthropogenic emissions to formation of organosulfates in an urban site in the Southeastern United States (SE-US). This is achieved by quantifying the major organosulfates from ambient measurements and comparing the identified compounds with those from laboratory experiment and a rural site in the SE-US, and other tracers measurements. The study reveals an enhanced formation of isoprene-derived organosulfate concentration, particularly the 2-methylglyceric acid sulfate which is known to be a tracer for high-NO_x isoprene-derived secondary organic aerosol (SOA) formation mechanism.

C1

The general objective is clear and the methods are well executed. There are some minor errors in the manuscript and some clarifications needed. Overall, I recommend accepting this manuscript for publication after corrections as detailed in the following.”

Authors’ response to anonymous referee # 2, general comments: We thank the referee for his/her careful review of our manuscript and for correcting the technical errors. We have made corrections to the manuscript according to the referee’s comments in a point by point form as shown below.

Anonymous Referee # 2, Technical Comments 1: “Define abbreviations at their first appearance when you are using them repeatedly, such as: GA (Pg 1 Ln 12), AL (Pg 1 Ln 22)”

Page 1, lines 11-12 originally read: “This study examines the anthropogenic influence on biogenic organosulfate formation at an urban site in Atlanta, GA in the Southeastern United States.”

This text has been revised to read: “This study examines the anthropogenic influence on biogenic organosulfate formation at an urban site in Atlanta, Georgia (GA) in the Southeastern United States (US).”

Page 1, lines 21-22 originally read: “Organosulfate species and concentrations in Atlanta were compared to those in a rural forested site in Centreville, AL during summer 2013, which were also dominated by isoprene-derived organosulfates.”

This text has been revised to read: “Organosulfate species and concentrations in Atlanta were compared to those in a rural forested site in Centreville, Alabama (AL) during summer 2013, which were also dominated by isoprene-derived organosulfates.”

Anonymous Referee # 2, Technical Comments 2: “Pg 1 Ln 11: add (US) after Southeastern United States”

Authors’ response to anonymous referee # 2, technical comments 2: This technical error has been corrected in the respond to anonymous referee #2, technical comment

C2

1 at page 1, line 11.

Anonymous Referee # 2, Technical Comments 3: "Pg 7 Lns 12-15: It is said here that the correlation between 2-methylglyceric acid sulfate with 2-methylglyceric acid is significant at $r = 0.608$. Based on description in Section 2.7, this correlation value is classified to be moderate. The use of "significant" is ambiguous, as it may be inferred as "strong". I recommend being consistent with the classification and description throughout the text."

Authors' response to anonymous referee # 2, technical comments 3: We agree with the referee's comment on using a consistent terminology to indicate the strengths of the correlations. However, this sentence is no longer in the revised text as it has been removed in the authors response to referee #1, specific comment on page 7.

Anonymous Referee # 2, Technical Comments 4: "Pg 11 Ln 30: insert "an authentic" before standard development."

Page 11, lines 28- 30 originally reads: "Given the ubiquity and high abundance of m/z 211 and 213 in the Southeastern US and other locations (Hettiyadura et al., 2017; Spolnik et al., 2018), they should be the next highest priorities for standard development."

This text is revised to read: "Given the ubiquity and high abundance of m/z 211 and 213 in the Southeastern US and other locations (Hettiyadura et al., 2017; Spolnik et al., 2018), they should be the next highest priorities for authentic standard development."

Works Cited

Hettiyadura, A. P. S., Jayarathne, T., Baumann, K., Goldstein, A. H., de Gouw, J. A., Koss, A., Keutsch, F. N., Skog, K., and Stone, E. A.: Qualitative and quantitative analysis of atmospheric organosulfates in Centreville, Alabama, *Atmos. Chem. Phys.*, 17, 1343-1359, 10.5194/acp-17-1343-2017, 2017.

Spolnik, G., Wach, P., Rudzinski, K. J., Skotak, K., Danikiewicz, W., and Szmigielski,

C3

R.: Improved UHPLC-MS/MS methods for analysis of isoprene-derived organosulfates, *Anal. chem.*, 90, 3416–3423, 2018.

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