

We would like to thank the reviewer for his/her helpful comments which improved the manuscript considerably. Answers to comments are written in blue. Changes in the manuscript are marked with red.

Review: Atmos. Chem. Phys. Discuss.; acp-2017-90 (Martinsson et al.)

General comments:

This manuscript explores the connection between chemical speciation at the micro level and air mass surface exposure at the macro level. The study is based on a comprehensive chemical data set of organic species. An expected outcome of the study is that the surface category “coniferous forest” had a clear impact on the mass concentration of the measured compounds, whereas the surface category “sea and ocean” only had a low explanatory power. As the authors state, the biogenic source and surface origin of the dicarboxylic acids, azelaic acid, suberic acid and pimelic acid, which are closely related, is not clear, and should be the focus of future studies.

Specific comments:

Page 2 – line 14: Another monoterpene to be considered is Δ^3 -carene (Räsänen et al., 2013).

We have added this information.

Page 2 – 25: The number of carbon atoms in a molecule should be indicated with a subscript: C₃-C₆, C₇-C₉.

This has been corrected.

Page 4 – line 23: A correction is needed here: “..... their MS/MS formation of HSO₄ - (*m/z* 97) (63 u)....”. Note that according to the IUPAC guidelines for terms related to mass spectrometry “*m/z*” should be in italic font (Murphy et al. 2013). Furthermore, the neutral loss of HNO₃ corresponds to 63 “mass units”, abbreviated as “u”.

This has been corrected.

Page 16 – Table 1: The structure of MBTCA should be corrected as follows:

This has been corrected.

Technical corrections:

Page 2 – line 6 and many places elsewhere: a space is missing after “;” in the cited references.

An error in the citation software won't allow the authors to insert this space. We are aware of this and hope that it can be fixed through typesetting if the manuscript gets accepted.

Page 2 – line 16: gas-phase products

This has been corrected

Page 2 – line 17: in the aerosol phase.

This has been corrected.

Page 3 – line 3: low-volatility

This has been corrected.

Page 3 – line 20: a one-year study

The current study is not a one-year study. It stretches from June 2012-July 2012.

Page 4 – line 2: high-volume

This has been corrected.

Page 4 – lines 3, 5 and 12: a space is missing before “°C”.

This has been corrected.

Page 4 – line 9: 15 µL.....

This has been corrected.

Page 4 – lines 16, 17 and 18: min (“minutes” is abbreviated as “min”).

This has been corrected.

Page 4 – lines 9 and 11: mL

This has been corrected.

Page 4 – line 19: The abbreviation “MS” stands for the technique “mass spectrometry” and not for the instrument. Thus: “The ESI-q-TOF-MS instrument” (see Murphy et al., 2013).

This has been corrected.

Page 5 – line 13: of precipitation,

This has been corrected.

Page 7 – line 3: fatty acid-derived

This has been corrected.

Page 7 – line 12/13: fatty acid-derived

This has been corrected.

Page 7 – line 13: have a different origin than isoprene- and monoterpene-generated acids,

This has been corrected.

Page 8 – line 3: “broad-leaved forest”

This has been corrected.

Page 8 – line 23: and monoterpenes

This has been corrected.

Page 8 – line 26: monoterpene-derived both monoterpene- and isoprene-derived

This has been corrected.

Page 8 – line 33: “broad-leaved forest”

This has been corrected.

Page 9 – line 12: “broad-leaved forest”

This has been corrected.

Page 9 – line 14: (C₇-C₉) (see specific comment above).
This has been corrected.

Page 9 – line 19: is thought to

This has been corrected.

Pages 11 – 14: Titles of journal articles should not be capitalized.

This has been corrected.

Table 2 – legend: Measured *m/z*, f) Surratt et al. (2008), h) Surratt et al. (2010).

This has been corrected.

References:

K. K. Murray, R. K. Boyd, M. N. Eberlin, G. J. Langley, L. Li, Y. Naito. Definitions of terms relating to mass spectrometry (IUPAC Recommendations 2013). *Pure Appl. Chem.*, 85, 1515-1609, 2013.

T. Räisänen, A. Ryyppö, S. Kellomäki. Effects of elevated CO₂ and temperature on monoterpene emission of Scots pine (*Pinus sylvestris* L.). *Atmos. Environ.* 2008, 42, 4160.