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 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.

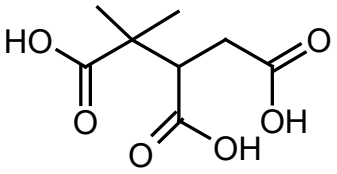
Specific comments:

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

Page 2 – 25: The number of carbon atoms in a molecule should be indicated with a subscript: C_3-C_6, C_7-C_9.

Page 4 – line 23: A correction is needed here: "….. their MS/MS formation of HSO_4^- (*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 HNO_3 corresponds to 63 "mass units", abbreviated as "u".

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



Technical corrections:

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

Page 2 – line 16: …. gas-phase products …..

Page 2 – line 17: ….. in the aerosol phase.

Page 3 – line 3: …. low-volatility …..

Page 3 – line 20: ….. a one-year study ….

Page 4 – line 2: …. high-volume …..

Page 4 – lines 3, 5 and 12: a space is missing before "^{o}C".

Page 4 – line 9: …. 15 µL ……

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

Page 4 – lines 9 and 11: ….. mL …….

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).

Page 5 – line 13: ….. of precipitation, …..

Page 7 – line 3: …. fatty acid-derived …..

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

Page7 – line 13: …. have a different origin than isoprene- and monoterpene-generated acids, …..

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

Page 8 – line 23: …… and monoterpenes …..

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

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

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

Page 9 – line 14: ….. (C_7-C_9) …. (see specific comment above).

Page 9 – line 19: …… is thought to …..

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

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

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 CO_2 and temperature on monoterpene emission of Scots pine (Pinus sylvestris L.). Atmos. Environ. 2008, 42, 4160.