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Atmospheric Chemistry and Physics Discussions

Interactive comment on "In situ measurements of volatile organic compounds in a boreal forest" *by* H. Hakola et al.

Anonymous Referee #1

Received and published: 27 August 2012

This paper presents a species-speciated BVOC data measured with in situ GC/MS. The data itself are worth to be reported. However, the major problem of this paper is that the paper is lacking clear scientific questions. Further, the paper adds little to what were already known. Major conclusions stated in the abstract are that (1) monoterpenes showed diurnal variability with maximum concentrations at night and minima during the day, (2) the diurnal variation was affected by boundary height, (3) sesquiterpenes concentrations were very low, (4) the diurnal variation of isoprene was opposite to those of mono and sesquiterpenes. All of these points have been already well understood. I think that a numerical chemical transport modeling is needed to analyze the observed dataset in terms of the processes (sources, sinks, and transport) governing the BVOC concentration in the boreal forest.

p.15568, l.24. Helmig et al. paper is missing in the ref. list.

p.15569, l.9. The author stated that “Approximately 60% of the isoprene was lost during collection”. Is there any possibility that water vapor in the sample stream affects the breakthrough volume? More detailed information for the experimental section should be given. There is also no information about the accuracy and the precision of the measurement method.

p.15569, l.17. The authors described the calibration using liquid standards, which would be much more concentrated than the forestal air sampled. The standard is within the detector’s linear range? Was any other standard used during the period?

p.15570, l.26. Agilent 5973N instead Agilent 5379N

p.15570, l.21-23. The observed low aromatic hydrocarbon concentrations after June are at least partly due to the breakthrough of benzene, as stated by the authors themselves.

p.15572. Please add figure such as wind rose combined with map so that readers can follow the discussion. Please explain how you concluded that “three of the episodes can be attributed to the closest sawmill” in a variety of possible anthropogenic sources. Is there any emission information of BVOC regarding the sawmill?

p.15573. I think the figure for enantiomerically-resolved monoterpene concentrations is needed.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 15565, 2012.

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Interactive Comment