Atmos. Chem. Phys. Discuss., 4, S1555–S1556, 2004
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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Deployment of a ground-based CIMS apparatus for the detection of organic gases in the boreal forest during the QUEST campaign" *by* K. Sellegri et al.

Anonymous Referee #1

Received and published: 12 August 2004

The paper describes the concentration measurements of various organic compounds in the boreal forest air using CIMS technique. This new technique makes possible the measurement of compounds such as amines, acetonitrile and methanol that are not so simple to measure with more common methods. Very little is known about the concentrations of these compounds in boreal environment and elsewhere. However, amines for example could have an important part in the new particle formation processes and the attempt to measure these compounds is important. Therefore, I recommend publication of this paper in ACP although the method clearly needs more validation work as stated by referee #2. My major concern deals with the identification/quantification of some of the measured compounds, especially isoprene, MVK, MACR and hexenylacetate.

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Comments:

1. The authors mention that the isoprene concentrations measured by other groups are much lower than what they measured. In the boreal forest none of the deciduous trees have leaves in March, Scots pine does not emit isoprene and according to Hakola et al. (2003) Norway spruce initiates isoprene emission in May. Also wetlands are known to emit isoprene, but in March the ground at the measuring site is covered with snow. Because none of the known isoprene sources are not yet functioning it is easier to believe that the lower concentrations measured by other groups are more correct and the isoprene concentrations measured in this study seem too high to be reliable. Isoprene concentrations typically show a daytime maximum since it is emitted only during the day, but the diurnal curve found in this study is different. I believe that the compound measured is not isoprene but something else or the calibration is wrong. I recommend that the concentrations of isoprene will be removed from the article.

2. Since the isoprene concentrations cannot be correct it gives doubts also to the MVK and MACR concentrations. They seem to be too high as well and should be removed.

3. I have also doubts concerning the concentrations of hexenylacetate. As the authors mention it is emitted from the cut grass, but the ground at the measuring site is still covered with snow in March. Hexenylacetate is also emitted from birch leaves, but there are no leaves yet. Has it been detected in the VOC emission from pines or spruces? The authors should discuss the origin of hexenylacetate.

Technical comment:

The chemical names of the compounds should not be capitalized. Now they sometimes are, sometimes not.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 3835, 2004.

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Interactive Comment