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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Tethered balloon measurements of biogenic volatile organic compounds at a Boreal forest site" *by* C. Spirig et al.

Anonymous Referee #1

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This paper presents field experiments in which large-scale fluxes of biogenic VOC have been evaluated by means of tethered balloons and surface fluxes have been deduced using a mixed layer gradient method and a boundary layer budget approach. Furthermore, a photochemical model has been used to analyze the links between biogenic VOC emissions and particle formation. This work is a part of OSOA project and an overview of all the field measurements made during the Hyytiälä campaign have been already reported by Boy et al. (ACPD 2003). The work reported in this manuscript was done with care and the authors critically analyzed and discussed in details the errors, uncertainties and limitations of the two methods used for VOC surface flux estimation. The results are also useful to better understand the role of biogenic volatile compounds during particle formation events in a rural area dominated by a boreal coniferous forest

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although, as stated by the authors, ozone-oxidation of other VOCs (not considered in the manuscript) must be taken into account. I found the paper well written and very interesting. I thus recommended it for publication after few changes.

Suggestions and technical corrections:

1. P. 5358 line 9: as major compounds, while isoprene (insert while).

2. P. 5360 line 20: change with 37% are dominated by pine, 16% by spruce, 18 is covered by deciduous forest and the remainder

3. P. 5362 line 22: as follow: water (lower case).

4. P. 5363 line 11: 3-fluorotoluene (delete u).

5. P. 5374 line 24: change (Sect. 2.5) with (Sect. 2.6).

6. P. 5376 5378: change all the μg/m2/h or μg/m3 in μg m-2 h-1 or μg m-3

7. P. 5385: line 27: Lagrangian(insert L).

8. Table 1 Average proportion of total terpenes should be in one line.

9. Fig 1 is rather small, could it be enlarged?

10. Fig. 2 μg/m3 should be changed in μg m-3. Specified if error bars are standard deviations.

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Interactive Comment

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