

Interactive comment on “Carbonyl compounds in boreal coniferous forest air in Hyytiälä, Southern Finland” by H. Hellén et al.

Anonymous Referee #2

Received and published: 28 July 2004

MS-NR: acpd-2004-si04003 Title: Carbonyl compounds in boreal coniferous forest air in Hyytiälä, Southern Finland Authors: H. Hellén et al.

The authors described 24h averaged concentrations of carbonyl compounds in northern forest atmosphere, and they also discussed about sources and sinks of these compounds. The authors concluded that the most important sink of the biogenic carbonyl compounds is reaction with OH radical (and partly photolysis and ozonolysis). On the other hand, they showed that the contributions of these carbonyls are also important as sinks of OH. I found this point is highly interesting and appropriate to Atmospheric Chemistry and Physics. Methodology which the authors used for this experiment is well known and established, so I believe that the description appears in the experimental section is enough to explain the methodology. The descriptions for results, discussion and conclusion are well completed. However, I would like to point that some minor

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parts in the manuscript should be modified and some other descriptions may be added before publication. My comments for this manuscript are following.

1. Some description which discuss about comparisons of the OH reactivity between the carbonyls and other species should be added. For example, regarding the site is rural area, NO₂ concentration may be below 100pptv, and then, total contribution (as an OH sink) of the carbonyls could be comparable to that of NO₂. The authors also may add same discussion for CO and non-methane hydrocarbons. Even if they do not have any concentration data for these other species, they can use typical values. I believe that such comparison can attract readers who are not so interested in biogenic carbonyl compounds.

2. The title probably needs to be changed. The most interesting point of this article is that biogenic carbonyl compounds may occupy a large part of the sink of OH in the northern forest air. Therefore, the title should include this point.

3. In table 1, the rate kOH of heptanal exceeds that of octanal. It seems to be curious. The rates for C₄-C₇ aliphatic aldehydes estimated by same method as octanal may be added in the table.

4. Some descriptions about geranyl acetone as a precursor of 6-MHO may be added if the authors have the data.

5. A new table which shows maximum, minimum, average and median of the concentrations should be added.

6. Labels for X-axis in fig. 3 should be changed to exact values (e.g. 12:00) and the number of the labels should be decreased to half. 7. Resolutions of all plots should be clarified.

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 2991, 2004.

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