

Interactive comment on “Seasonal measurements of total OH reactivity fluxes, total ozone loss rates and missing emissions from Norway spruce in 2011” by A.C. Nölscher et al.

Anonymous Referee #1

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Several important criticisms must be answered and explained in a revised submission:

1. While considerable ozone consumption was measured, some of which occurred in reactions with terpenes, sesquiterpenes, the reaction products of these are not included in the calculation of OH reactivity from individual species observed (see Kim et al., 2011). These reaction products (2nd and 3rd generation) are probably too sticky to be quantitatively (or even qualitatively) detected by PTRMS or GCMS techniques, so that their concentrations and identities must be inferred. Why is this not included in discussion?

2. Ambient air is continuously leaked into the enclosure to replace air withdrawn for

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analysis by PTRMS, GCMS, ozone analyzer, etc. The estimated leak rate is not given, but may be significant. This air contains fresh ozone and OH, which likely react with terpenes and sesquiterpene emissions. Please discuss.

3. The estimation of monoterpenes and sesquiterpene emissions used only temperature dependent algorithms. Some of these emissions may have had a significant light and seasonal dependence. Was this explored (it has a direct effect on your results)?

4. No evidence is provided to support the statement that no UV light penetrated the cuvette walls to induce photochemical reactions. Please provide this.

5. Ambient temperature is not plotted alongside cuvette temperature to allow judgment of cuvette temperature increases during the closed-cuvette measurement period (it is not clear how long the cuvette was closed during the OH reactivity measurements). Certainly ozone consumption increased with cuvette temperature and is assumed to relate to chemical losses (which may have also resulted in some OH production). Again, the products of the chemistry indicated are not included in the theoretical calculation of OH reactivity as the sum of the individual reactants with OH.

Interactive comment on Biogeosciences Discuss., 9, 13497, 2012.