

Interactive comment on “Comparison of OH reactivity measurements in the atmospheric simulation chamber SAPHIR” by Hendrik Fuchs et al.

Hendrik Fuchs et al.

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We thank the reviewer for the helpful comments.

Comment: Authors comment that in previous field work large unexpected OH reactivity was found, both in biogenic and urban environments, but the results of the intercomparison showed that the contribution of OH reactivity of terpenoids and other oxygenated compound is underestimated by CRM techniques. Could the authors extend the comments about this issue, and if the results of these intercomparison campaigns could lead to a re-interpretation of data results for some of the field works?

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Response: An underestimation of the OH reactivity due to monoterpenes and OVOCs may have led to an underestimation of the missing OH reactivity when it was observed by CRM instruments during previous field campaigns. The reason for the underestimation is not known. It likely depends on the speciation and concentrations of the terpenoids and possibly experimental or ambient parameters. Without detailed knowledge, it is not possible to re-interpret data from these past campaigns since the monoterpenes and OVOCs mix was very likely different from that used during the present intercomparison experiment. While this suggests that the reported missing reactivity represents a lower limit (especially in monoterpene rich environments), it seems to us that making extrapolations of the level of underestimation would be very hazardous.

Comment: VOCS from plant chamber: Could the authors give more experimental detail about experimental conditions e.g: flow used for plant emission transference to SAPHIR, humidity changes during experiment, number of trees used for the experiment, etc

Response: We will add:

- p7 I4: “Relative humidity typically dropped to 40 to 50 % during the experiment due to temperature changes and dilution.”
- p7 I21: “In another experiment with biogenic reactants, emissions from plants (3 pine and 3 spruce, artificial light) were transferred into the chamber at a flow rate of 11m³/h.”
- p7 I31: “...(typical range of relative humidity between 25 and 80 %).”
- p7 I32. “Initial ozone concentrations were around 100ppbv and dropped to 20ppb before re-injection.”

Other minor comments will be included as suggested by the reviewer.

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