

Interactive comment on “Chemical sensing of plant stress at the ecosystem scale” by T. Karl et al.

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This paper reports a month of measurements of the emissions from a deciduous walnut orchard focussing on VOCs which can signal ecosystem stress before visible damage becomes apparent. These chemical warnings are important for better understanding of ecosystems and their contribution to the missing VOC budget. This paper therefore is of high interest to readers of Biogeosciences. It is well written, clearly structured.

However, I do have a few specific comments I would like the authors to consider.

For the HAPSITE Smart instrument, as it is not commonly used yet, it is desirable to state the instrument's time resolution, whether the ionisation occurs at the conventional 70 eV and what the total measurement uncertainty and detection limit is for MeSA and

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a monoterpene.

A quantitative in situ intercomparison between GCMS and PTRMS including their total measurement uncertainty would support the flux estimates.

An equation or a reference to the calculation of the internal MeSA mixing ratio in leaves would be nice.

Would it be possible to include in the discussion what kind of correlation there was between the MeSA flux and the hexenal isomer flux?

The authors state that the emissions of methylsalicylate (MeSA) were as high as the monoterpene emissions. However, it should be stressed that in terms of the amount of carbon released, monoterpenes were 29

Which are the primary oxidation products formed on the OH- and O₃-oxidation of MeSA? Can the author spend special interest in the potential formation of smaller OVOCs like methanol,... during the oxidation?

One may include '(accumulated dose over a threshold of 40ppbv)'; on the first time 'AOT40' is mentioned.

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