

Interactive comment on “Changes in monoterpene mixing ratios during summer storms in rural New Hampshire (USA)” by K. B. Haase et al.

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Dr. Bonn, Thank you very much for reviewing our manuscript, “Changes in monoterpene mixing ratios during summer storms in rural New Hampshire (USA)”. Below, we have included specific responses to your comments.

A. The only thing on a potential wish list might be the direct emission measurements from enclosures to figure out if the plants act independently or as ecosystem. But, that’s far beyond the possibilities in this case.

We feel that these observations highlight the utility of long term, high resolution monitoring for exploring fast atmospheric events that might otherwise go unnoticed or are hard to produce in a controlled setting. The lack of direct emissions data is certainly

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regrettable, and would definitely help elucidate the mechanism of monoterpene release and more accurately constrain emissions. Direct measurement of emissions will certainly be a focus of future follow-up studies.

B. I can only recommend putting in a figure displaying the duration of the storm episode driven emission to indicate the length as a function of storm intensity. In case the editor favors that as I do, please include this.

We agree that this would be a very useful piece of information to have, but this would be a challenging prospect to achieve accurately. Other factors often come into play that make the length of total emission difficult to determine. Winds often increase after a storm's passage mixing in air with lower mixing ratios of monoterpenes, and in cases where they do not, the formation of a pronounced nocturnal inversion layer is common in the region, resulting in overnight buildup of monoterpenes reaching into the range of a few ppbv. As we have no explicit information about monoterpene speciation, nor direct emission measurements, it would be highly subjective to try to delineate a specific emission period beyond the initial bursts. However, recent literature has suggested that this period could extend for several days (Bamberger, et al. 2011 <http://dx.doi.org/10.1029/2010JD015457>).

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