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Biogeosciences Discussions

Interactive comment on "Identification of secondary fatty alcohols in atmospheric aerosols in temperate forests" *by* Yuzo Miyazaki et al.

Anonymous Referee #2

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General comments

The paper by Miyazaki and coworkers present an interesting study investigating the composition and source of fatty alcohols though the use of measurement device (Gas Chromatography – Mass Spectrometer especially) in 2 forest sites in Japan. Five secondary FAs were identified, and concluded to originate from plant wax, and could be used as tracers for primary biological aerosol particles.

The presentation of this work is clear and consistent and focuses on a topic that has been poorly investigated so far, therefore bringing new and key knowledge to the community. I also believe the presentation of this work would benefit from a deeper analysis and presentation of the context of the scientific issue. I therefore support the publication of this manuscript in Biogeosciences, once my comments below have been taken

into account.

Specific comments:

In the introduction, some elements should be added to depict more clearly what the challenges and the context of this scientific problematic are. For instance what do we know regarding the reactivity, fates and quantity of FA emitted from plants? Are there any global/regional estimates? What are the lifetimes of most compounds involved here?

In section 2, regarding the forest sites where the measurements have been carried out, could you give some more details regarding the vegetation itself: tree heights / tree species for Tokamokai Experimental Forest, and leaf area index for both sites? Also the information regarding wind direction has not been given for Fuji-Hokuroku Flux Research Site and should be added in order to better understand the origin of the air masses.

In section 2 also, regarding the measurement protocol, could you specify what the sampling duration is not the same between both forest sites (1 week for the first site and 2 weeks for the second) and which impact do you expect on the results?

In section 4, lines 23-25, results of previously published works are presented. Could you specify on which periods of the year the compounds were observed?

In section 4, lines 30-35: amongst the different compounds observed, what is the status of knowledge regarding the amount and the sensitivy to environmental parameters (temperature, light, etc.) of these emissions?

In section 4, based on results shown in Table 1: the highest values of mass concentrations indeed always occur during spring, while lowest values do not always appear at the same season: which elements can explain this? Do we have any explanation on this, and especially on the specificity from one compound to another?

Technical corrections:

Figure 3: please try to make the plots and writings more visible as they are not easily readable.

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