Faiola et al., Biogeosciences Discuss., 11, 13455-13514, 2014

Response to Anonymous Referee #2

We thank the reviewer for her/his supportive and constructive comments. We have revised the manuscript in several instances to address the reviewer's concerns, and believe the paper is stronger as a result. This response will address the concerns in the order they were raised. Reviewer comments are in bold italics.

General Comments

The research discussed in the manuscript by Faiola et al. is a novel and important addition to our collective knowledge of tree/insect interactions and their effects on VOC emissions. The emission profiles of six coniferous species, both before and after simulated herbivory by methyl jasmonate, are discussed. The atmospheric impact of the changes in VOC emissions are estimated by the calculation of hydroxyl radical and ozone lifetimes. Perhaps one of the most noteworthy findings is that trees species which may be considered low VOC emitters became high VOC emitters by simulated herbivory, and this suggests that careful consideration of tree species should be made when simulating the effects of herbivory on the changes in VOC emissions.

Thank you for these positive comments.

Specific Comments

I believe that chemical names do not need to be capitalized, thus the legend in figure 1, for example, could be corrected. Also, in the text, myrcene (p. 13481 line 26) and phellandrene (p. 13475 line 19) do not need to be capitalized.

Thank you for drawing our attention to this error. We have changed the chemical names in the text you have pointed out here to lowercase as suggested. For the figure legends and axes labels, we chose to capitalize the chemical names for stylistic reasons. This is a common practice and we prefer to leave them as they are. However, we will defer to the journal's editorial judgment on the matter.

The number of replicated in each experiment should be more explicitly stated, by indicating the number of replicated in Table 1.

Each of the individual experiments with results presented in this paper is listed in the table separately. Consequently, stating replicates within the table could be misleading to

the reader. Moreover, our overall objectives of the study were such that numerous replicates of the same tree type were not a priority. This study was part of a project with the objective to investigate effects of herbivory stress on the composition of secondary organic aerosol from biogenic volatile organic compound emissions. With that objective in mind, we chose to prioritize diversity of represented tree species over repeated replications of each tree type. To clarify this objective, we have added the following statement in the introduction.

> *"This study was a component of a project that investigated the effects of herbivory stress on the composition of biogenic secondary organic aerosol generated from BVOC emissions. Published data on this topic is extremely limited, so one goal of this work was to identify "key" tree species that could produce a large herbivore-treatment effect on SOA composition."*

An additional sentence was added to the end of section 2.1:

> *"Emphasis in the experimental design was on the diversity of representative tree species included, which limited the number of replications that were possible."*

Please indicate the physical meaning of the error bars in the caption of Figure 1 (standard error?, and of what?)

Thank you for pointing out the lack of detail here. The following sentences were added to the figure caption:

> *"The average BER was calculating using all data from the end of the acclimation period until immediately before the stress treatment was applied (> 24 hours of measurements). The error bars represent +/- one standard deviation from the mean value."*