**Biogeosciences
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Interactive
Comment

Interactive comment on "Volatile diterpene emission from dominant conifers in Japan" *by* S. N. Matsunaga et al.

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Received and published: 14 September 2011

Response to referee #2

A major problem of this manuscript is that the authors do not know the right way to measure and calculate the emission rate using a enclosure method. The authors better consult related papers or textbooks for the right method. The equation (1) in the manuscript is completely wrong. If measuring the emission rate by dynamic enclosure method, the emission rate should be as $E=F \times (C_{eq} - C_0)/W$, where F is the flow rate of air supply, W is the dry weight of leaves, and C_{eq} and C_0 are equilibrium-state concentration and blank concentration, respectively. Typically C_0 is negligible. If we have F and W, we need just to measure C_{eq} for the emission rate. Since the authors are wrong with their emission rate measurement, their discussion and conclusions are

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therefore also wrong. I can not agree to the publication of this manuscript at its present state.

–> It seems that there is a misunderstanding on the definition of letters in the equation due to our inappropriate choice for the letter representing the mass of the compound (C in the equation, it is not a concentration.).

$E = (F\_air \times (C - C\_blank)) / (F\_samp \times t\_samp \times W\_leaf)$

as described in the text, C represents mass of the target compound in micro g. A part of the equation, $C/(F\_samp \times t\_samp)$ and $C\_blank/(F\_samp \times t\_samp)$ make concentrations of target compound and target compound in blank sample, respectively.

Therefore, if C were to represent mass in micro g, the equation (1) and the equation $E = F \times (Ceq - C0)/W$ shown by the referee are same. Because the GC analysis does not directly give us concentration, authors preferred more detailed description.

Authors understand that the letter C is usually used to represent concentration, thus, the mass should be presented by the letter M. The equation has been modified in L12p9.

Please find supplement pdf file for revised text.

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/8/C3069/2011/bgd-8-C3069-2011-supplement.pdf

Interactive comment on Biogeosciences Discuss., 8, 6681, 2011.