

Interactive comment on “Large estragole fluxes from oil palms in Borneo” by P. K. Misztal et al.

Anonymous Referee #2

Received and published: 6 March 2010

This paper provides data showing large fluxes of estragole above oil palm canopies; in fact, estragole was second only to isoprene. The authors suggest that the flowers are the source of the estragole emissions, which is supported by the fact that the compound is an attractant to the African oil palm weevil. Estragole flux was modeled sufficiently well with the Guenther-type algorithm even though the emission maximum was in the evening.

General Comments

This study is a nice representation of coupling the above-canopy fluxes with leaf/flower-enclosures. The science is bolstered with very nice contextual history of oil palm pollination.

Standards: The in-situ measurements are understandably performed without a specific estragole standard, but why wasn't one used in the laboratory experiments? Did the

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authors use a standard on the identical instruments when they returned from the field to ensure the peak identification and quantification procedure? This comment is particularly directed towards the use of m/z 77 response to that of the α -pinene standard (page 1529). In doing so, the authors assume that estragole has a similar response to the adsorbent and column as a monoterpene even though estragole is clearly more polar. The lack of standard used with the GC and PTR-MS seems at odds with the “nebulised estragole” used with the HR-ToF-AMS (page 1538).

Deposition modeling: I agree with the previous reviewer’s comments regarding the uncertainty of the deposition modeling. Moreover, I don’t believe that it is necessary to the argument of the paper if more information is provided in terms of light and temperature-dependence parameters.

G06 algorithm: Explain the “G06” algorithm and how it was used in this parameterization. Some places in the text it is referred to as “G06” and in others it is the “Guenther-type.” What are the best-fit temperature and light dependent parameters used here? This will provide comparisons to other studies.

Specific/Technical Comments

Page 1524, line 6: Specify the type and/or vendor of the heating tape.

Page 1525, line 20: “Kim et al., 2008” is noted in the text, but “Kim et al., 2009” is in the references.

Page 1528, lines 13-17: Clarify this long sentence. It seems as if there are multiple thoughts.

Page 1529, line 5: Delete the period after “NY)”

Page 1533, lines 5-8: Clarify this statement. Again, it seems like two sentences have been blended together.

Page 1534, line 9: Do the authors have evidence to support the claim that “insects

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avoid tropical heat”?

Page 1537, lines 4-6: Explain how the “approximate 50% free air-space” was estimated and taken into account in the calculations.

Page 1537, lines 27-29: What is the basis for the assumptions of vegetation density used to scale up the measurements?

Table 1: If the canopy values are what is shown, then only use the corresponding reference in the table (Bouvier-Brown et al., 2009b)

Figure 6: make the flux line thicker so that a reader can clearly see the PAR coloration.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 1517, 2010.

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