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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Isoprene emissions over Asia 1979–2012: impact of climate and land use changes" *by* T. Stavrakou et al.

Anonymous Referee #2

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The paper shows the impact of the weaker emissions from a rain tropical forest, expanding oil palm with the higher emissions, and more realistic downward solar radiation, on estimations of isoprene emissions in Asia. The estimated bottom-up emissions were also verified by satellite-based emissions. The methods seem sound and the most up-to-date. The results are very useful for the related researchers.

The paper is well-organized and the interpretation seems so clear that a reader can easily understand the contents. In the text, the reviewer could almost find the reasons for some questions, which he/she would like to ask about the methods and the estimations/results.

But he/she still has one question: Why are isoprene emissions larger in S2 than in

S3 in Malaysia (Fig. 9)? The results are different from those in Indonesia, although the reasons are found in Page 29564, L28 – Page29565, 29565. This means original standard emission factor and/or fraction of oil palm are in S2 more than that in S3?

Minor comments: Page 29555, Lines 17-20: There is a similar report of weaker isoprene emission from a rain tropical forest canopy in the Malay Peninsula: Saito, T., Yokouchi, Y., Yoshiko Kosugi, Y., Tani, M., Philip, E., Okuda, T.:Methyl chloride and isoprene emissions from tropical rain forest in Southeast Asia, Geophys. Res. Lett., 35, L19812, doi: 10.1029/2008GL035241, 2008. This also supports your results.

Page 29563, Lines 8-21: The content (i.e., the relationship between Isoprene emission in Asia and ONI) seems a little bit abrupt, and it should also be stated in the introduction's last paragraph, in advance.

Page 29566, Line 6-8, "negative trend": Here, it is better to state that the negative trend is due to replacement of cropland with tree plantations, as mentioned in page 29554, lines 14-16.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 29551, 2013.