

***Interactive comment on* “Evaluation of the global oceanic isoprene source and its impacts on marine organic carbon aerosol” by S. R. Arnold et al.**

Anonymous Referee #2

Received and published: 21 October 2008

This global modeling paper presents a new evaluation of the global source of isoprene from the oceans complementing the model by satellite observations, measurements of phytoplankton specific isoprene productivity and evaluating model results against isoprene observations in the remote marine atmosphere.

It provides careful discussion of the related uncertainties and also evaluates the impact of the isoprene marine source to the organic aerosol levels over the oceans.

The paper is well written, of interest for tropospheric chemistry and climate community and deserves publication in ACP after small corrections.

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Page 16450, lines 15-17: Could you provide the uncertainty associated with the PFT distributions?

Page 16451, lines 14-16: Could you comment on how truncating affects the final results, i.e. in addition to the negative values, how unrealistic the result would be if the tails were not restricted to the min and max observations?

Page 16453, lines 16-17: Short lived chemical reactive compounds like isoprene experience large diurnal variability, do you account for this when comparing with observations? And how?

Page 16456, section 4: Please make clear differentiation between Tg-C and Tg-compound.

Page 16457, lines 25-26 and next page discussion: Consideration of isoprene chemistry forming secondary organic aerosol instead of a flat 2% yield will affect the seasonal patterns, since it will alter the timing of maxima and thus the whole discussion that follows. In the present study secondary organic aerosol formation is uncoupled from chemistry.

Page 16458, lines 10 and 24, also page 16460 lines 22-24: Explain how decoupling is done and why this is needed. See also comment above that is relevant.

Page 16456, lines 1 and 2: there are typos to the exponentials.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 16445, 2008.

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