

Interactive comment on “A numerical evaluation of global oceanic emissions of α -pinene and isoprene” by G. Luo and F. Yu

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As pointed out during this online review process, the lifetime of alpha-pinene is longer than that of isoprene. The boundary layer budget equation imposes an additional physical constraint on the relative ratio between isoprene and alpha-pinene fluxes. [E.g. $\text{Flux}(\alpha\text{-pinene})/\text{Flux}(\text{isoprene}) \sim (\tau(\text{isoprene}) \cdot C(\alpha\text{-pinene})) / ((\tau(\alpha\text{-pinene}) \cdot C(\text{isoprene}))]$. Assuming comparable lifetimes (τ) and concentrations (C), the alpha-pinene flux would be expected to be in the same range as the isoprene flux. It needs to be explained why the modeled alpha-pinene flux is more than a factor of 10 higher than the modeled isoprene flux, while their observed concentrations are very similar.

Also, I was unable to find reference material on how
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monoterpene oxidation is incorporated in GEOS-CHEM (e.g. http://acmg.seas.harvard.edu/geos/wiki_docs/chemistry/chemistry_updates_v6.pdf). It will be helpful to the reader to include either a reference or an appendix that documents the chemical reactions which are considered for a-pinene/monoterpene oxidation.

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