Biogeosciences Discuss., 7, C86–C88, 2010
www.biogeosciences-discuss.net/7/C86/2010/

Biogeosciences Discussions

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7, C86–C88, 2010

Interactive Comment

Interactive comment on "The emission factor of volatile isoprenoids: caveats, model algorithms, response shapes and scaling" *by* Ü. Niinemets et al.

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Received and published: 19 February 2010

I challenge the main conclusion put forward in this review/opinion piece by arguing that one of the biggest emission uncertainties inherent in regional and global CTMs arises not exclusively from subtle differences in definitions of parametrized emission algorithms, but from uncertainties associated with up-scaling to the ecosystem and regional scale. This is true for most ecosystems, certainly for tropical ecosystems due to the inherent species diversity. We have recently demonstrated (Karl et al., 2007) that ecosystem scale flux measurements in combination with a VAT model can be used to derive a weighted ecosystem scale Es using an inverse modeling approach. I argue that a more integrated approach than presented by Niinemets et al. is clearly necessary. Uncertainties of species aggregation in higher scale emission models can only be assessed by ecosystem scale flux measurements, which can largely eliminate aggregation errors discussed by Niinemets et al. and put the discussion of uncertainties in context of quantitative improvements of BVOC emissions in CTMs. Global observations of photooxidation products in combination with CTM inversions can also provide useful top-down constraints for VOC emission models. It is surprising that only little discussion is devoted to these emerging topics and a whole body of recent literature is simply ignored. Yet without a more integrated approach little progress in reducing errors in bottom-up emission models will be made.

Some important missing references for isoprenoids include:

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Interactive comment on Biogeosciences Discuss., 7, 1233, 2010.

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