

Interactive comment on “Estimation of biogenic volatile organic compound (BVOC) emissions in China using WRF–CLM–MEGAN coupled model” by Lifei Yin et al.

Anonymous Referee #3

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General comments: This paper focused on estimating BVOC emissions in China for the year 2018 by using WRF-CLM-MEGAN. My main concern is about the ‘new’ knowledge brought up by this paper. The paper used the coupled version of model, but the current results are insufficient to present new knowledge from this simulation or the benefits of using WRF + CLM set up for running MEGAN. From the spatial and temporal patterns, we cannot simply see where the improvements are in comparison with previous estimations. Furthermore, the evaluation with the observation data compared the modelled result from 2018 with literature values from any another year, which is not rigid at all. The differences in measured and modelled site conditions, such as environmental conditions and plant composition were not discussed or compared in the evaluation,

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instead, the authors concluded that we need more measurement data.

The structure of this paper is not well organized. For example, the data information L151 – 154 were placed in the results section; large amount of model description was placed in the introduction part. The aim or hypothesis of this study is not clear.

English needs to improve in this paper.

Detailed comments:

L35-37, please use more recent global estimations.

L45-46, What do you mean with ‘...as an insolated step outside the whole terrestrial ecosystem processes’? Do you actually mean that BVOC processes are not linked to photosynthesis? Another issue here is that the references the authors listed here were just based on one model. It is not a good idea to conclude this is a general problem for modelling BVOCs only based on one model.

L113-115, it is not clear for me why the authors decided to use MODIS LAI, instead of the modelled LAI and dynamic vegetation, and also why not consider CO₂ impacts on emissions? Please clarify. MODIS LAI is 8 days intervals, how the author deal with the days between 2 LAI images. Another issue is that: did the authors consider quality flag for the LAI product?

L121, “... and each run covered 31 days ...” where these runs refer to? Please clarify.

L148, not clear for me what modification/process have been implemented.

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