

Geosci. Model Dev. Discuss., referee comment RC1
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Comment on gmd-2022-154

Anonymous Referee #1

Referee comment on "Isoprene and monoterpene simulations using the chemistry–climate model EMAC (v2.55) with interactive vegetation from LPJ-GUESS (v4.0)" by Ryan Vella et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-154-RC1>, 2022

This work gives very nice information on the recent development of global-scale BVOCs emissions modeling with multi-model and components interactions. And there are authors' efforts to evaluate the results with a lot of previous works including scientific reviews. I think this research shows an advanced way of estimating BVOCs with more realistic interactions with Earth components. I have only a few questions and suggestions for the publication as follows.

Figure 7 and 8, and 9: Please make the same y-scale both at the ONEMIS and MEGAN results (middle and bottom panels), such as in Figure 11.

3.3. I understand the author wanted to measure the sensitivity of doubling atmospheric CO₂ and vegetational CO₂ separately. However, the increasing CO₂ influences the vegetational CO₂ in reality. The author should mention about "real" future conditions or add the case with scenarios of realistic future conditions of Bio and Atm.

Line: 310: Why does the author think that Both x 2 scenarios showed some exceptions of lower LAI over some places in North America, Western Brazil, and Southern Europe? That

needs a few scientific explanations like partially described in conclusions.