

Interactive comment on “A statistical approach for estimating representative emission rates of biogenic volatile organic compounds and their determination for 192 plant species/genera in China” by Lingyu Li et al.

Anonymous Referee #3

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General comments Accurate BVOC emissions are important for us to understand the atmosphere. These field measurements of BVOC emissions were made at nine locations in China using our established semi-static enclosure system. The BVOC species were analyzed with GCMS and FID. The field measurements along with reported emission rates from China and abroad were summarized. The emission intensity categories were produced based on statistics, with more detailed categories, accurate emission rate intervals and representative rates compared to previous studies.

The revisions are needed. My comments and suggestions are as follows:

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Specific comments Line 25: “with more detailed categories, accurate emission rate intervals and representative”. The observational accuracy is determined in the measurement. It has nothing to do with more detailed categories and emission rate intervals. Therefore, the method in this paper probably can't give more accurate emission emissions than previous studies. Line 67: How many rotameters were used? Please describe it in more detail. Such as: type, company, what's the accuracy of the flow rate? How it controls the flow rate? Line 120 and Figure 1: The measurement of PAR is not right. The PAR sensor should be placed in the Tedlar bag. Large observational errors from PAR measurement would be introduced to normalized emission rates, especially the measurements were carried out at different time. The transmittance varied with solar zenith angle and the Tedlar surface. The normalized emission rates should be corrected. Please give the uncertainty of BVOC emission rates. Line 178: What's the uncertainty for isoprene, α -pinene, β -pinene and other species? Line 263: alkenes alkenes, please delete one alkenes. Line 308: ... new interval were eliminated due to possible measurement errors. Many old intervals were removed. Does it mean there were large measurement errors in the measurements? What are the reasons for this? Line 354: Their use of fewer categories could result in underestimation of emission rates for plants with higher emission potentials. For example, the emission rate estimates of Eucalyptus, Quercus, Populus, and bamboo were much lower in previous studies than in our study. What's the reason for this difference? which could result in an underestimation of 4.9–7.8 Tg C yr⁻¹ for isoprene emissions in China. How can get 4.9–7.8 Tg C yr⁻¹? Table 4 and Table 5: emission rates for isoprene and monoterpenes are almost the same? Some old mission rate intervals were removed in Table 5, which may be more useful data to understand realistic BVOC emissions. Line 417: our emission rate categories were more detailed, and the emission rate interval and representative rates were more accurate. How can prove it? Table 6: What's the improvement for this study? Most of the normalized leaf-level isoprene and monoterpene emission rates in China are the same with the previous studies in the Table 6.

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