Thank you for the valuable comments and corrections! We have considered them carefully and have added more information related to the sample collection, chemical analysis and the inverse model in our manuscript, the tables and figures were also revised in accordance with your and Reviewer #1's suggestions. Our replies were addressed below.

Anonymous Reviewer #2

The study by Liu et al. reports on ambient observations of BVOCs in southern Kenya and investigates the differences in their mixing ratios at contrasting environments (highlands vs lowlands). In addition to the comprehensive presentation of their observations, the authors attempt to characterize the significance of local BVOCs in atmospheric chemistry, through calculations of the OH, O3 and NO3 reactivities, and eventually, they use an inverse modelling approach to calculate and compare the emission factors with the MEGAN model. This is a well written study that presents observations from an environment that such data are scarce and therefore valuable. I recommend publication of the study after the authors address the comments from the excellent review of Anonymous reviewer1 and the following minor additional points.

***2.2** How many samples were collected per season and per site?*

Thanks for your clarifying question. We have now added the information to Appendix A (Table A1).

***L181**. The provided link does not work.*

Sorry about that. We have now added another link (Line 193).

***L267**. Figure 5 is quite confusing. Maybe it would be better if the results are plotted in different figures for the wet and the dry seasons. In any case, the color selection has space for improvement. The authors may want to use a tool for selecting appropriate colors (e.g. https://colorbrewer2.org).*

Thanks for your suggestions and link. We tried to incorporate both your and reviewer #1's suggestions regarding Fig. 5 (thus see reply to Ref #1 regarding comments on Fig. 5). In practice Fig. 5 was modified and additional figures displaying the daily behaviour of isoprene, total monoterpenoids, total sesquiterpenes, α-pinene, and limonene - separated into rainy and dry seasons - were added (Figs. A5-1 to A5-4).

***L350-351**. Please discuss further on the claim of limonene's seasonality.*

Thank you for your clarifying question. We do not claim that the emission factor of limonene is seasonally dependent, but we write that there might be a possibility that it is (L348-351 in the original submission). We do not have more data, than presented in the original submission of the manuscript, to further explore a possible seasonality of the emission factor of limonene. The most likely reason for a possible seasonality is - and this is again speculation - changes in phenological condition and status of emitting species in the footprint area (see e.g. Fig. 2d-e). But as stated on L363-365 in the original submission of the manuscript - to our knowledge - emission rates have not been reported from the plant species in the footprint area, and thus we cannot prove this hypothesis. We will reformulate L350-351 in the original submission to "Thus, our results suggest that the EF for limonene might be seasonally dependent, which could be caused by changes in the phenology of emitting species in the footprint area, though we do not have any emission rate observations of the species to backup this hypothesis."

***Figure 7** contains very interesting information that needs to be better investigated and discussed (especially for the species that their emissions do not match with the results produced by the MEGAN equations).*

Thanks for your interest in these results. Since the lifetime of monoterpenes is a few hours (see Sec. 3.2), it is likely that part of the detected monoterpenes have been transported to the site from areas covered by other plant functional types than warm C4 grass and Crop1, such as broadleaved trees and shrubs, which are thought to have a significantly higher potential to emit monoterpenes (Guenther et al., 2012). It is, however, noteworthy that our estimated EF for β-pinene is in line with the listed value by Guenther et al. (2012) for warm C4 grass and Crop1, but not for broadleaved trees and shrubs, though the lifetime of β-pinene is within the same range as that of the other monoterpenes. MBO has a lifetime of about half a day, and thus a great part of the detected MBO does not originate from the near vicinity of the site, but can have been transported far. However, the EF listed in Guenther et al. (2012) for MBO for all plant functional types present in the relevant parts of Africa (https://doi.org/10.5194/gmd-5-1341-2012) is still about 2-3 orders of magnitude lower than estimated here. This might call for a revision of EFs for MBO, considering that also Jaars et al. (2016) found even higher concentrations of MBO than we did in this study, in an area of Africa which also should not contain MBO emitting species. We will add this extended discussion to the existing discussion in Sec. 3.3.