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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Probabilistic estimation of future emissions of isoprene and surface oxidant chemistry associated with land use change in response to growing food needs" *by* C. J. Hardacre et al.

Anonymous Referee #1

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This study looks at the possible changes in future biogenic isoprene emissions and atmospheric chemistry driven by changes in land use change. I think this is an interesting paper and I would recommend publication if the authors could provide some clarification in the paper -

(1). There are 500 realizations for each future land use change scenario (A1 or B1), but it's not clear how the 500 realizations are obtained - is that done by randomly combining the different variables controlling/affecting the future land use? Are the changes of all these variables consistent with the corresponding scenario?

(2). P33369 L24-27 - "increased cropland area .... isoprene emission factors assigned to a particular grid cell would not change" – why the isoprene emission factor remain constant for the grid cell with the changes in vegetation composition?

(3). I would suggest the authors to compare their calculated land use change (in particular the changes in cropland) by 2030 to existing literature and comment on the possible consistence or discrepancies in the projections.

(4). Fig.3 - the unit of km2 is really confusing - is it actually km2/grid?

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Interactive Comment