

Comments:

This paper separates the effects of land-use change, carbon density, allocation of carbon pool through an interesting controlled simulation of two bookkeeping models. This study is useful to clarify the sources of uncertainty in the calculation of CO₂ emission from land-use change, which is an important topic and addressed nicely by this paper. However, some methodology and parameters are not very clear and need improvements. Please see specific illustrations as below:

1. The cooperation of S_{BL} and S_{BL-Net} shows the impact of land-use transitions. However, how about the difference of spatial distribution of land-use of LUH2v2.1 and FAO. If S_{BL-Net} is 13% lower than S_{BL} , in what probability is it affected by the difference of land-use distribution of LUH and FAO?
2. Figure 2 shows the global flux from land-use, what factors contributes to the differences of $S_{HNF_{Full}}$ and NH2017?
3. This paper only analyzes the contributions of land use transitions, carbon density and allocation. Other factors such as climatology also affect the F_{LUC} . How about the contribution of other factors in addition to those three parameters? I suppose these two BK model use the same climate forcing data?
4. For Figure 5, it is a bit confused to me that crop-pasture transitions result in 60% F_{LUC} difference in Sahara desert. Crop-pasture transitions is common in Sahel, but Sahara desert should rarely have crop-pasture transitions?
5. How about the uncertainty of carbon allocation parameters used by the two models?