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*Supplement of*

## **Comparing the influence of net and gross anthropogenic land-use and land-cover changes on the carbon cycle in the MPI-ESM**

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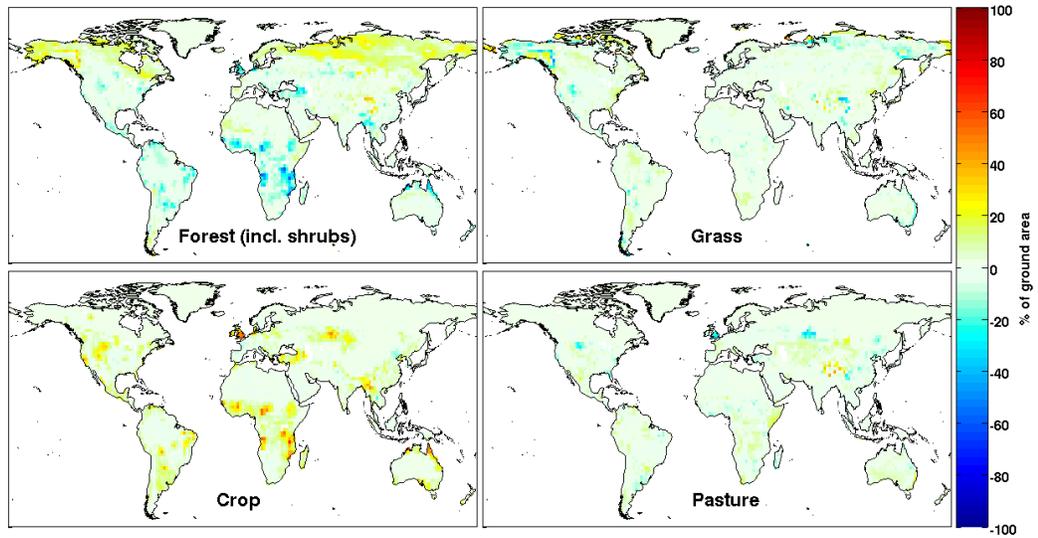


Figure S1: Vegetation differences between 2100 and 2006 for RCP 2.6. (Compare to figure 2 in the paper).

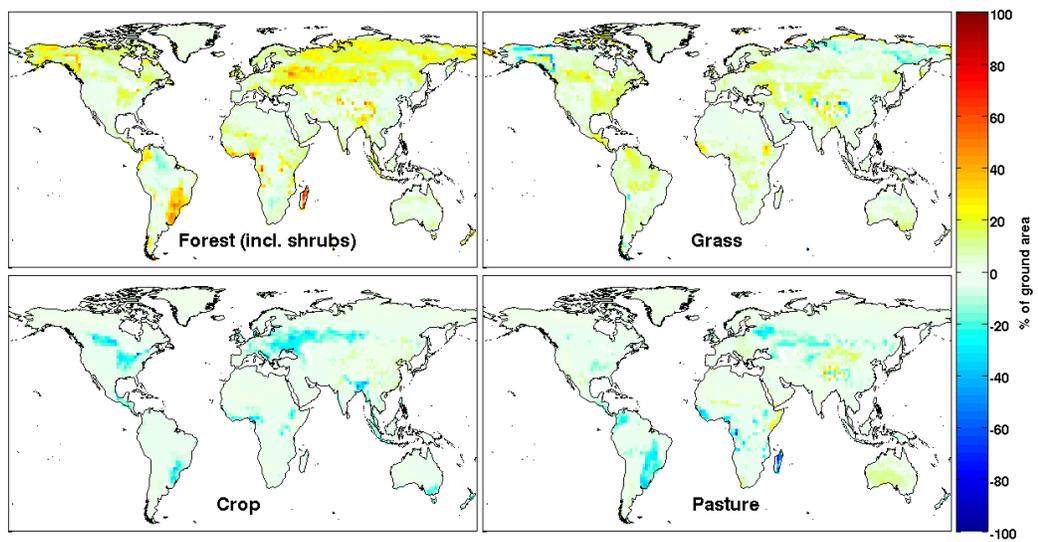


Figure S2: Vegetation differences between 2100 and 2006 for RCP 4.5. (Compare to figure 2 in the paper).

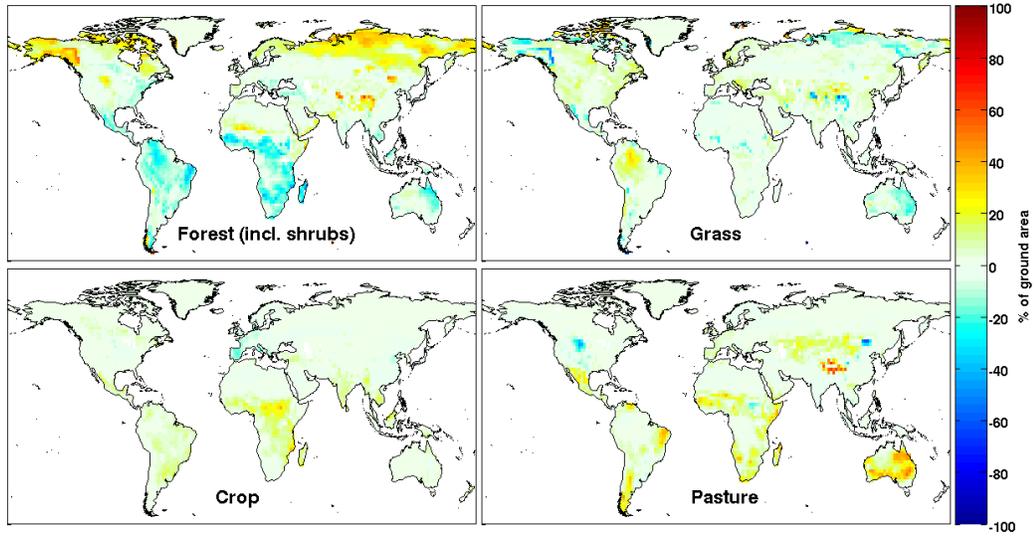


Figure S3: Vegetation differences between 2100 and 2006 for RCP 8.5. (Compare to figure 2 in the paper).

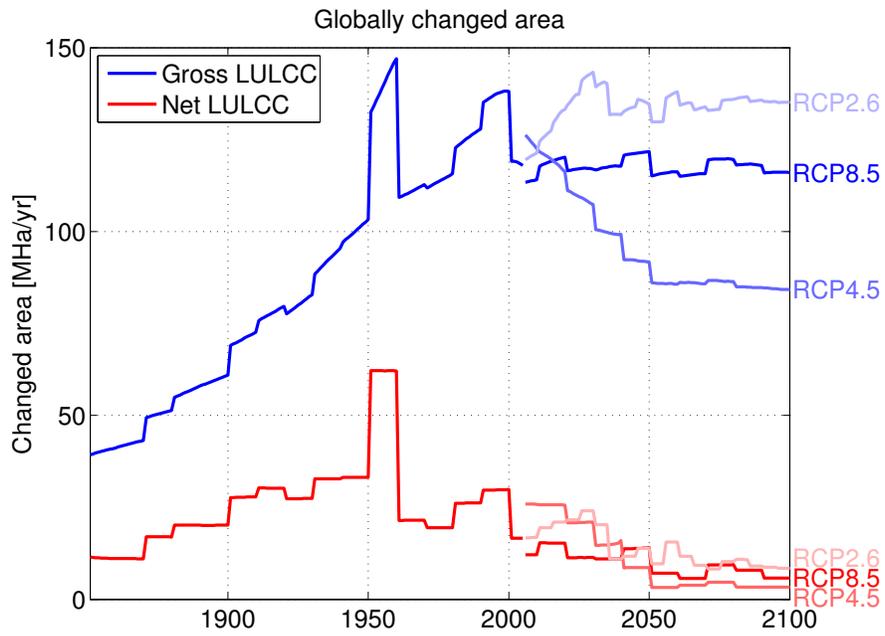


Figure S4: Global annual area which has undergone land-cover-changes.

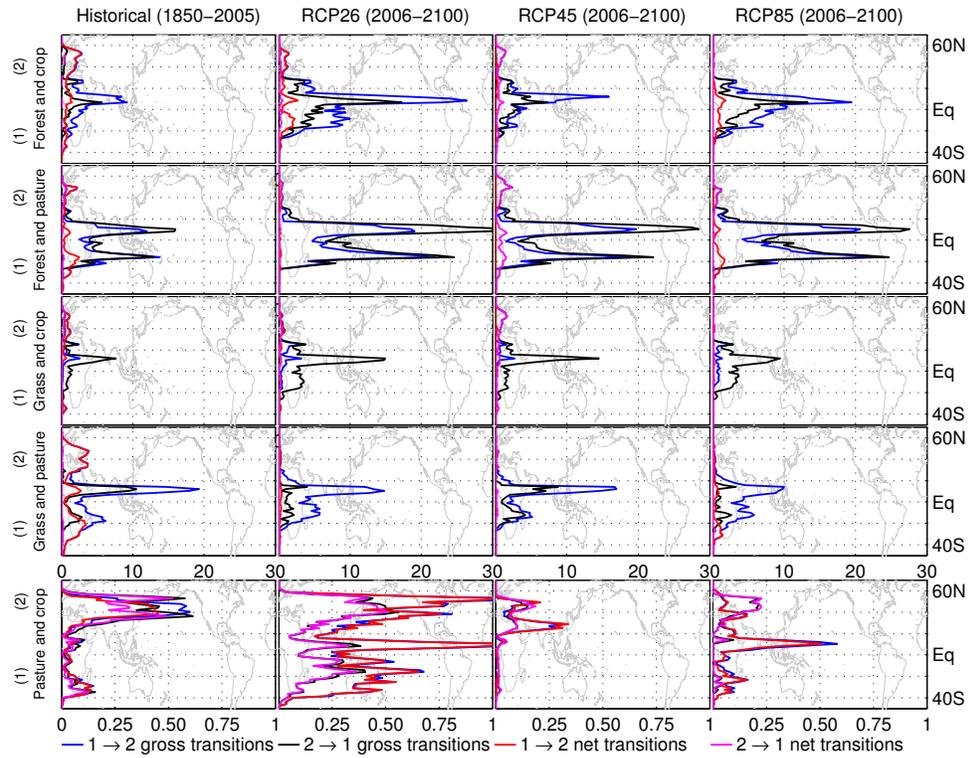
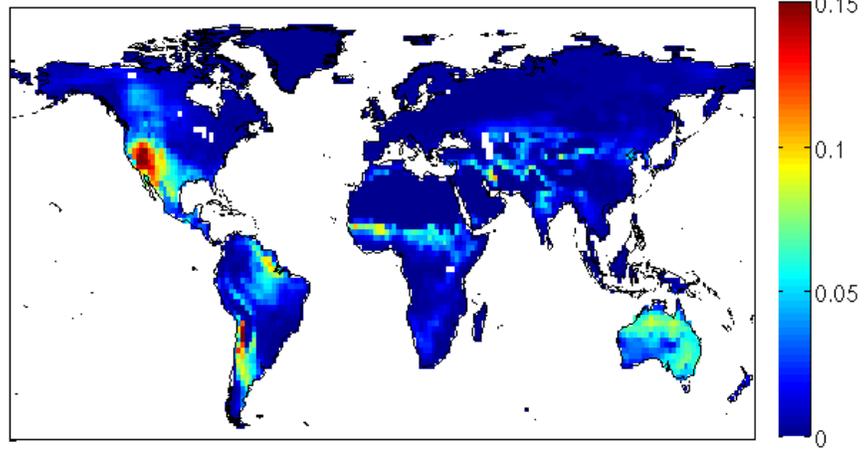


Figure S5: Yearly average land-use changes [ $10^3\text{km}^2/\text{latitude band}/\text{yr}$ ] (in the T63 Gaussian grid, the shown latitude bands are about 1.87 degrees) between pairs of vegetation classes for the scenarios. E.g. in the upper panels, the blue curve is the gross conversion from forest to crop, the black gross crop to forest, the red net forest to crop and the magenta net crop to forest. Note that the scale of conversions between pasture and crop (lower panels) is 1/30 of that of the others.

Average (1850-2005) annual wildfire burned fraction of grid-cell area, gross LULCC



No-LULCC minus gross-LULCC avg. annual wildfire burned fraction of grid-cell area

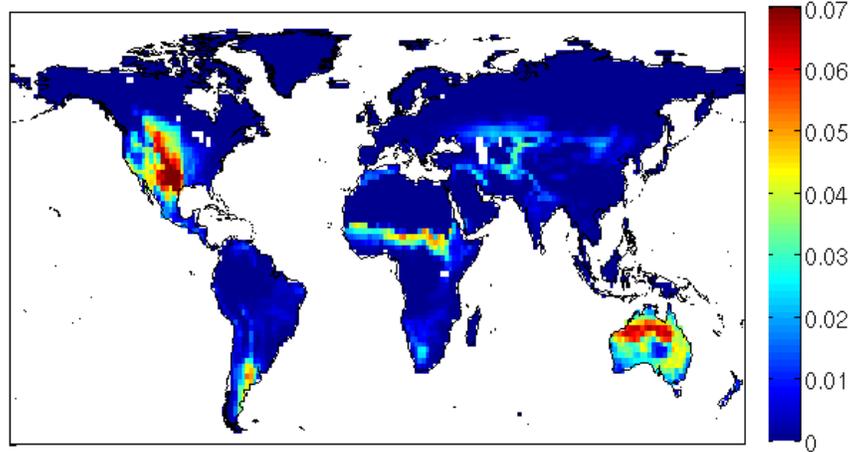


Figure S6: Average annual area fraction burned in wildfires (upper panel) during `hist_gross` and differences between average annual area fraction burned in wildfires between `hist_none` and `hist_gross` (lower panel).

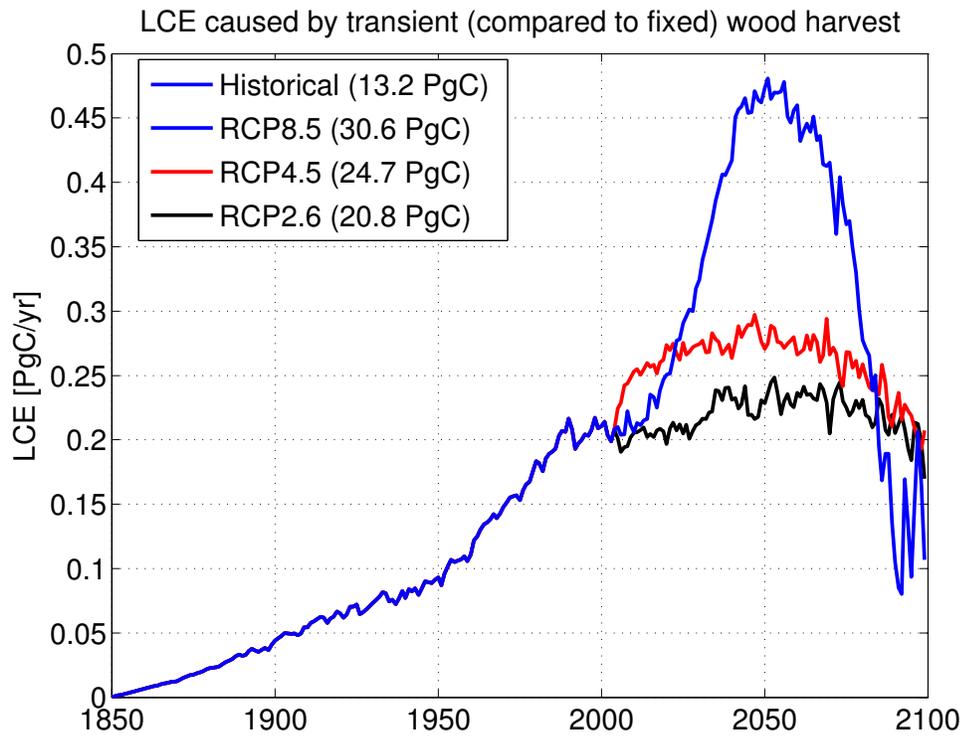


Figure S7: Contribution of wood harvest to LCE of both gross and net LULCC (Fig. 3) caused by fixing wood harvest to the level of 1850 (from the difference between `hist_none` (`rcp_none`) and `hist_harv` (`RCP_harv`)). The cumulated LCE difference between the experiments is added to the legend.