Dear Referee,

Thanks for your close observations regarding the text readability and clarifications, linking figures and typos. We will work through them during the revision process (See a detailed list below).

With kind regards,
Lena Boysen & co-authors

Line 107: supplementary figure 2 is cited before figure S1. Invert figures S1 and S2.
Reply: We will change the order of the figures in the SI.
Line 127: "kilometres" should be "kilometers".
Reply: We will correct this.
Lines 150-161: Six out of nine models present some divergence from the protocol. If the analysis is performed only on the remaining three models, is it changing the main results?
Reply: We will add the results for only the three models that correctly followed the protocol.
Line 163: How many members does MPI provide? Seven or eight?
Reply: MPI provided seven members; we will correct this in line 206.
Line 170: the "branching year" is not given for all models in Table S1.
Reply: We will add the branching year for all models.
Equation 1: Tsurf,piControl should be $T_{surf,piControl}$ with "surf,piControl" subscript.
Reply: We will correct the subscript.
Table 1: which symbol denotes non-significant changes (it is missing in my pdf version)?
Reply: As stated in the caption, non-significant values are shown in parentheses.
Table 1: does "Pr" stand for precipitation?
Reply: We will add that 'Pr' stands indeed for precipitation.
Table 1: in "DcLand over DF" of "MPI" there is an extra parenthesis ")".
Reply: We will delete the parenthesis around MPI.
Figure 2: "near surface air temperature" refers to DTas?
Reply: We will add '(ΔTas)' to the caption.
Figure 3: why don't you directly use Figure S3 as Figure 3? Figure S3, indeed, contains the same information in Figure 3, but it also shows the global versus deforested grid-cell comparison. In figure S3, you could add the multi-model mean values, as done in figure 5.
Reply: We will swap Fig. 3 and S3 as another referee also requested. We see the value in both figures which add different messages to the manuscript.
Lines 323-324: where can I see the changes in evapotranspiration and latent heat flux?
Reply: ET is shown in Fig. S8, latent heat fluxes are not displayed in a map. We will add the link and '(not shown)' to the text.
Line 326: "net shortwave", but the brown line in Figure 2 shows incoming shortwave and not the net one.
Reply: We will add that this can better be seen in Fig. S4c.
Line 327: the temperate and boreal areas are introduced, but the latitudinal range of these regions are only reported later on in the text (caption of Figure 4).
Reply: We will add the latitudinal range.
Line 328: Figure S5 shows the distribution of albedo changes. It is not showing that "increasing albedo are stronger than reduction in longwave radiation".
Reply: We will shift 'Fig S5' to right behind the mentioning of 'albedo'.
Lines 328-329: "net shortwave reduces", is it shown in figure S4c?

Reply: We will add '(Fig. S4c)'.
Line 329: "incoming shortwave radiation increases", is it brown line in Figure 3?
Reply: Yes, it is. We will add this.
Lines 330-331: "MPI and IPSL reduction in cloud cover", is it shown in Figure S4f?
Reply: Yes, we will add the link.
Line 332: "turbulent heat flux", is it shown in Figure S4a?
Reply: Yes, we will add the link.
Line 342: "increase in albedo", is it visible in Figure S5?
Reply: This should be 'increase in the albedo… (Fig. 5)'.
Line 343: "reduced cloud cover", is it shown in Figure S6?
Reply: Yes, we will add the link.
Line 343-344: where is shown the comparison between changes in incoming shortwave from clouds and incoming shortwave from albedo?
Reply: This was inferred by comparing the contributions of albedo and incoming shortwave radiation itself on Tsurf. For IPSL, CNRM, Can and BCC, the incoming shortwave radiation contributes with a greater increase in Tsurf than the reduction caused by albedo does. We will add the references to the text.
Line 347: "as also observed" should be "is also observed".
Reply: This will be corrected.
Line 352: "net warming", is it visible in Figure 2c?
Reply: Yes, and Fig. 3c. We will add the link.
Line 352: "evaporative cooling", is it shown in Figure S8i?
Reply: Yes, and Fig. S3i. We will add the links.
Line 354: "sensible heat fluxes", is it shown as cyan lines in Figure 3?
Reply: Especially in Fig S3d and S4e. We will add the link.
Line 355: "BCC temperature increase", is it visible in Figure 2f?
Reply: Yes, and S3f. We will add the link.
Line 359: "evaporation decrease", is it shown in Figure S8f?
Reply: Yes! We will add the link.
Line 359: "increase cloud formation", the cloud increase seems limited over the Amazon in Figure S6f.
Reply: Yes, but the text passage only deals with this region, so this should be covered.
Line 361: "not shown", the difference between longwave and longwave clear sky is displayed in Figure S7. Are you referring to different variables? Otherwise, the difference is shown. The described difference is not visible to me in Figure S7.
Reply: Indeed, this is shown in Fig. S7 but hard to detect. This is a very local region in northern Amazon but which leads to a strong temperature signal.
Line 364: is CNRM case shown in Figure 3e?
Reply: Yes, we will add the link.
Lines 369-370: formatting error: the new line is started too early.
Reply: This will be corrected.
Line 383: available energy should be Figure S4b instead of Figure S4a.
Reply: Yes, indeed.
Line 385: "cloud formation", is it visible in Figure S4f?
Reply: Yes, we will add the link.
Line 386: turbulent heat flux should be Figure S4a instead of Figure S4b.
Reply: Yes, indeed.
Line 386: is latent heat flux visible in Figure S4d?

Reply: Yes, and S8.
Line 388: "[...] over temperate and boreal over grassland [...]", the second over should be deleted.
Reply: Will be corrected.
Lines 416-421: The temperature changes per unit fraction of grid cell deforested range between 4 and -20, why Figure S9 has values between 2 and -2?
Similarly, the temperature changes per unit area deforested reported in Figure S10 and the text cover a different range of values.
Reply: Only a few pixels show these extreme values; If we extended the color bar range we would lose the visibility of the main range. We will add '(Note that the color bar range is limited and extreme values not shown).'
Line 431: "On average [...] 0.27 °C $frac^{-1}$", does it refer to Figure 4a?
Reply: Yes, we will add '(derived from Fig. 4a)'.
Line 434: "reverse at higher DF", does it refer to Figure 4c?
Reply: Yes, we will add the link.
Line 434: "regions_there" should be "regions (Fig. 4b) there".
Reply: This will be corrected and the link added.
Lines 465-467: "Over South America [...] over Eurasia", where are these changes shown?
Reply: The regional time series is not shown. We have added 'not shown' to the text.
Line 485: "30% and 10% of deforestation still left", is it visible in Figure S12?
Reply: Yes, we will add the link.
Line 506: "2013) and" should be "2013; and".
Reply: This will be corrected.
Lines 572-573: "For all models but MIROC [...] (DcSoil).", is it visible in Figure 8?
Reply: Yes, we will add the link.
Lines 577-579: "Below ground carbon [...] several decades)", are fast and medium soil carbon pools displayed in Figure S17?
Reply: Yes, we will add the link.
Line 585: "large NEP", is it visible in Figure 10d?
Reply: Yes, we will add the link.
Lines 594-595: are heterotrophic respiration and net ecosystem productivity shown in Figure 10?
Reply: Yes, we will add the links.
Line 598: "NPP reduction", is it depicted in Figure 10b?
Reply: Yes, we will add the link.
Lines 617-618: "cVeg change [...] carbon pools", is it visible in Figure 8?
Reply: Regional soil carbon time series are not shown. We will add this to the text.
Lines 618-619: "The exception [...] soil carbon pool", where is it shown?
Reply: We will add '(not shown)'. Listing all regional time series would be too much for the SI.
Lines 621-622: "In BCC, [...] simulation period", is it shown in Figure 10?
Reply: Yes, we will add the link.
Line 628: "uniform global increase in NPP", is it visible in Figure 10b?
Reply: Yes, we will add the link.
Lines 628-629: "especially in the tropics", where is it shown?
Reply: In Fig. 9d. We will add the link.
Lines 630-631: "GPP changes are [...] south-east Asia", is it shown in Figure 9b?
Reply: In Fig. 9d. We will add the link.

Lines 634-636: NBP values are the ones shown in Figure 10f?
Reply: Yes, we will add the link.
Lines 644-645: “GPP reductions [...] GPP increase in time”, are the changes shown in Figure 9?
Reply: Yes, we will add the link.
Lines 680-684: The range of values displayed in Figures S20 and S21 are different from the values reported in the text. For example, Figure S20 shows values between -20 and 20 kg m-2 frac-1, while the text describes changes between -40 and -90 GtC.
Reply: The range displayed in the color bar is not the complete range. Adding the extreme values would lead to less visibility of the main range.
Lines 686-687: “Fig. S25” should be “Fig. S22”.
Reply: This will be corrected.
Lines 691-692: “In the tropics, IPSL [...] forest removals.”, is it visible in Figure S22a?
Reply: Yes, we will add the link.
Line 695: “removal in South America”, is it shown in Figure S20c?
Reply: It’s S23c. We will add the link.
Conclusions: the conclusions should also report the opposite biogeophysical response between boreal/temperate forests and tropical forests. The possibility to identify a "threshold" latitude below which re/afforestation could have both biogeophysical and biogeochemical cooling effect is significant.
Reply: We will add ‘On average, the switch of sign from tropical warming to extra-tropical cooling happens around 22.6°N, thus just outside the tropics.’.
Figure S2: caption: “Mkm2” should be “Mkm^2” with “2” as apex.
Reply: This was an issue of converting the .docx to PDF. It will be fixed.
Figure S7: why doesn't this figure report CESM2?
Reply: CESM2 did not provide clear-sky longwave radiation. We will add this.
Figure S9: caption: “frac-1” should be “$frac^{-1}$” with “-1” as apex.
Reply: This was an issue of converting the .docx to PDF. It is fixed now.
Figure S10: caption: “km2” should be “km^2” with “2” as apex.
Reply: This was an issue of converting the .docx to PDF. It will be fixed.
Figure S13: “Only statistically significant areas as found in Fig. 2 are shown.” but the figure’s legend report also “non-sign.”. Are non-significant areas plotted or not?
Reply: True, we only display significant values. We will correct the legend.
Figure S15: caption: “m2” should be “m^2” with “2” as apex. Add why some models are not plotted.
Reply: This was an issue of converting the .docx to PDF. It will be fixed.
Figure S16: caption: “km2 year-1” should be “km^2 $year^{-1}$” with “2” and “-1” as apex. Add why some models are not plotted.
Reply: This was an issue of converting the .docx to PDF. It will be fixed.
Figure S18: caption: “ToE in years [...]” should be “ToE and FoE in years [...]”.
Reply: It should actually be ‘ToE in years and the corresponding FoE in %...’.
Figure S19: caption: “Same as Fig S19 but for the ToE of gross primary productivity” should be “Same as Fig S18 but for the ToE and FoE of gross primary productivity”.
Reply: This will be corrected.
Figure 20-23: caption: Add why some models are not plotted.

Reply: We will add to Fig. S15, S20, S21 and S23: ‘Note, that CanESM and BCC did not follow the protocol when removing forests (see section 2.2) and are therefore not displayed for land carbon pools.’