

August 31, 2018

Dr. Fortunat Joos
Associate Editor
Biogeosciences

Dear Dr. Joos,

Thank you for the August 29th correspondence regarding the revised manuscript entitled "The impact of spatiotemporal variability in atmospheric CO₂ concentration on global terrestrial carbon fluxes" (bg-2018-187).

We included the suggested figure that shows the percentage changes in GPP and NBP (magCO₂ vs. 3hCO₂) as Figure S6 in the supporting information. The figure is now cited in Page 14, Lines 18 and 27 of the revised manuscript.

Again, thank you for considering the study for publication in Biogeosciences.

Sincerely,
Eunjee Lee

Global Modeling and Assimilation Office (GMAO)
NASA Goddard Space Flight Center, Code 610.1
Greenbelt, MD 20771

eunjee.lee@nasa.gov
1-301-614-6239

New figure S6

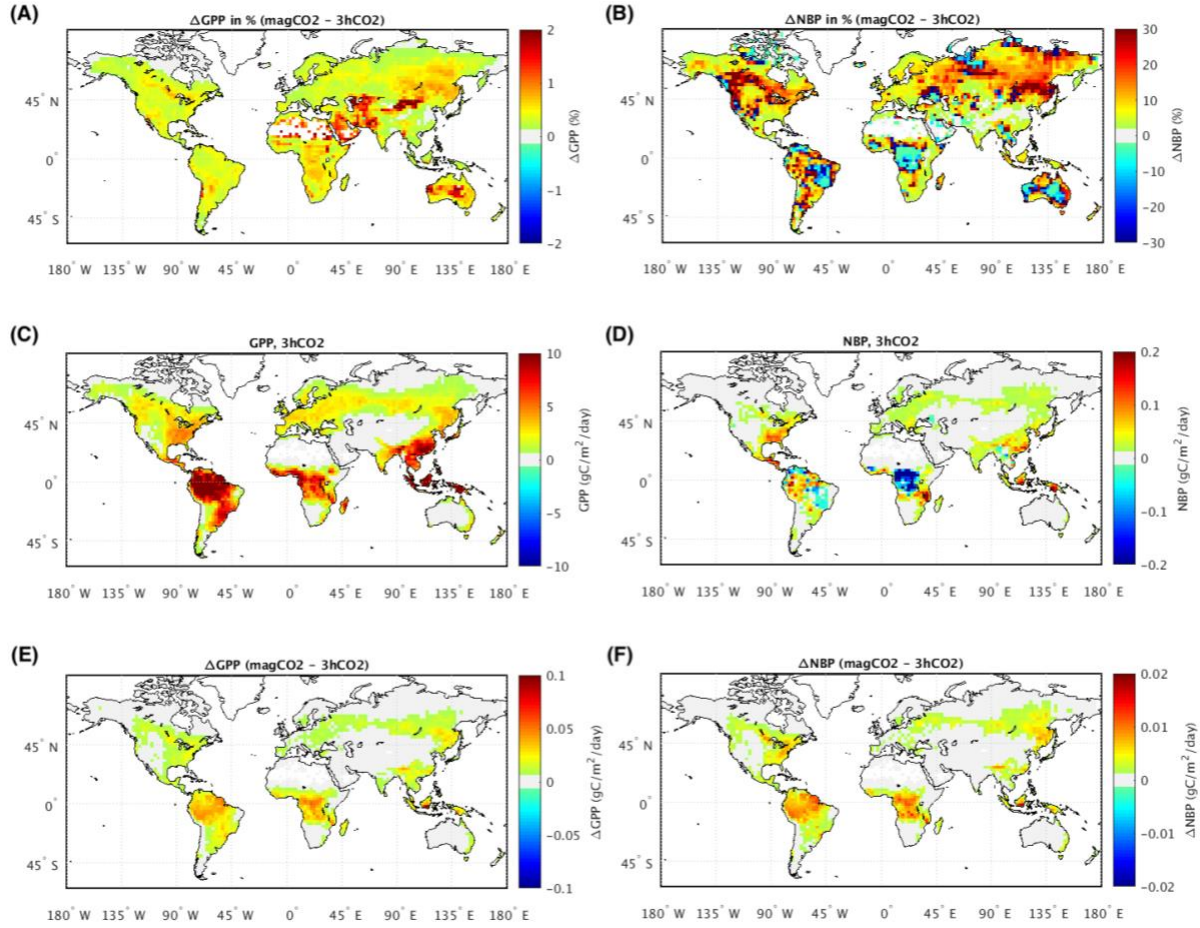


Fig. S6. Percentage differences in mean annual (a) GPP and (b) NBP between the commonly used CO₂ forcing (magCO₂) and the control (3hCO₂). The mean values of the control case and the differences that are used to compute the percentage differences in (a) and (b) are presented in (c)-(f).

Comments to the Author:

Dear authors

Your MS has been assessed again by one of the original reviewer. I am pleased to accept your manuscript for publication in BG subject to minor revision (review by editor).

As you will see from the referee report, the referee asks for an additional figure:

"An additional figure, or two figures actually, that would be interesting are maps of the total changes between the highest resolution CO₂ forcing and the global annual CO₂ forcing (magCO₂), GPP and NBP (instead of incremental changes and differences between the steps). I think the regional bias may be more interesting than the 0.1 Pg C difference, because many things can be changed in a model to get a change of 0.1 Pg C NBP, and known regional biases due to a simplification in the CO₂ forcing are therefore interesting. Maybe as % of GPP and NBP? I.e. a clear figure of the estimated maximum regional impact of the common simplified CO₂ forcing."

I believe that this is a valuable suggestion that likely improves the value and impact of your manuscript. I therefore suggest that you follow the advise by the reviewer and that you add this additional information to your manuscript.

Looking forward to receive your updated manuscript.

Thank you for submitting your work to Biogeosciences.

With best wishes, Fortunat Joos