

Interactive comment on “Leveraging the signature of heterotrophic respiration on atmospheric CO₂ for model benchmarking” by Samantha J. Basile et al.

Anonymous Referee #2

Received and published: 30 September 2019

This paper connected heterotrophic respiration and atmospheric CO₂ concentrations, and examined impact of signals of heterotrophic respiration on atmospheric CO₂ using model outputs. This study suggests that the atmospheric CO₂ concentrations could be used to verify the global estimation of heterotrophic respiration, and furthermore verify models. The idea is interesting and the manuscript is basically clear. I have just a couple of comments.

The diagram of your analysis (kind of flowchart) is necessary to understand this analysis.

Seasonal cycles of HR in Fig. 2: The peaks of HR in middle and high latitudes of

C1

northern hemisphere are in autumn (Sep to Oct). Is this widely accepted? For me, the peaks should be in July-Sep. Are the heterotrophic respiration and NPP you used well correlated with observation data oriented estimates in terms of amount, seasonality, and spatial pattern? This is important for this study.

There seems several jargons which the authors should explain more carefully or replace them with easier wordings.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2019-256>, 2019.

C2