**Reply to Reviewer 3:**

We want to thank the Reviewer for providing these useful comments. In the light of this and other Reviewers' considerations, we are reassessing our approach, especially for what concerns the estimation of long-term effects on vegetation productivity. Rather than using the methodology as described by Power and Delage (2018) as in the original study, in a revised work we will estimate long-term effects with the carbon-cycle feedbacks framework, which enables us to explicitly account for the contribution of $CO_2$-fertilization by using the 1pctCO2-bgc simulations. Additionally, we will estimate the long-term climatic contribution to the Amazon carbon sink by using the 1pctCO2-rad simulation, which factors out the carbon-concentration feedback. With this respect, we will refer to the previous literature in order to provide the necessary context for our results and better clarify the novel aspects in our study. In a revised manuscript, we plan to maintain the multi-linear regression framework for describing the inter-annual variability of carbon fluxes within the Amazon basin. Despite non-linear effects are not accounted for in our multi linear regression model, we will be able to capture the biggest part of carbon-fluxes variability in the Amazon basin. We are confident this is the case for our work given that we will be considering annual-mean values, where the interaction of ENSO with local climate are more predictable and quasi-linear, as opposed to what is observed at higher frequencies (daily to seasonal timescales) and higher spatial resolutions, a condition where indeed non-linear effects could be predominant, as correctly pointed out by the Reviewer. We believe these adjustments will allow us to overcome the limitations of the original manuscript and provide a fully convincing methodology and robust results.