**Author response for:** Norton et al., Improved process representation of leaf phenology significantly shifts climate sensitivity of ecosystem carbon balance, egusphere-2022-1265

**To the editor**:

Many thanks for your feedback. We are pleased with the streamlined review process. Below, I've outlined the changes you have requested to fully address Reviewer 2's comments. This includes minor changes in the Introduction and Methods sections to distinguish the modeling and model-data fusion components of the study i.e. the LAI models (Knorr, CDEA), the terrestrial biosphere model (TBM i.e. DALEC) and the model-data fusion system (CARDAMOM)..

1. In the Introduction and Methods sections, any reference to the LAI model is changed to "LAI submodel". For example, at the end of the Introduction the text now clearly states "We implement a prognostic, climate-sensitive LAI **submodel** into a TBM and benchmark this against an empirical diagnostic LAI **submodel** used in a previous version of the same TBM".

2. In the Methods section 2.2 Model-data fusion, we have modified the text to make the distinction between components clear: "CARDAMOM is a Bayesian MDF system, used to retrieve time-invariant parameters and initial conditions for the Data Assimilation Linked ECosystem (DALEC) TBM".

3. Furthermore, we have added some text under the section Model Description to state: "we describe the two separate implementations of LAI phenology used in this study that are linked to same representation of carbon and water cycles **i.e. the same TBM but different LAI phenology submodels**".

4. Finally, under the section Model Description and subsection Knorr Model, we have removed the reference to "CARDAMOM" and replaced it with "DALEC", as that is the TBM we're referring to.