



Implementing seasonal carbon allocation into a dynamic vegetation model

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Long-term measurements of terrestrial fluxes through the FLUXNET Eddy Covariance network have revealed that carbon and water fluxes can be highly variable from year-to-year. This so-called interannual variability (IAV) of ecosystems is not fully understood because a direct relation with environmental drivers cannot always be found.

Many dynamic vegetation models allocate NPP to leaves, stems, and root compartments on an annual basis, and thus do not account for seasonal changes in productivity in response to changes in environmental stressors.

We introduce this vegetation seasonality into dynamic vegetation model LPJ-GUESS by implementing a new carbon allocation scheme on a daily basis. We focus in particular on modelling the observed flux seasonality of the Amazon basin, and validate our new model against fluxdata and MODIS GPP products. We expect that introducing seasonal variability into the model improves estimates of annual productivity and IAV, and therefore the model's representation of ecosystem carbon budgets as a whole.