**Title:** (Understanding the decoupling of CO2 uptake and woody production)

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Martínez-Sancho *et al.* (2022) use an innovative approach to describe the seasonal course of carbon sequestration in tree stem growth and how this is affected by drought.

There is growing evidence that CO2 uptake and woody production are decoupled. …(Jiang *et al.*, 2020) …(Dow *et al.*, in press) …(Cabon *et al.*, 2022) …. (Kannenberg *et al.*, 2022) Of course, these observations of decoupling do not imply that *ANPPwoody* is completely decoupled from *GPP*; rather, the two show some level of correlation both in relation to interannual climatic variation at a single site (Cabon *et al.*, 2022) and across broad climatic gradients (Banbury Morgan *et al.*, 2021). However, we now have clear evidence that we cannot expect that a constant allocation of photosynthate will be coupled to woody growth, on either intraanuual or interannual time scales.

C allocation to woody growth is an important parameter in models, yet models get it wrong. Therefore, this is an important uncertainty.  
To get models right, we need to understand seasonal patterns of C allocation to woody growth and how they are influenced by climate variation (and change)

(describe typical seasonal patterns, including what was known and what Martinez-Sancho contributed.)

(talk about drought impacts)

We need more studies like Martínez-Sancho *et al.* (2022) – bonus if they also get GPP – to broaden our understanding of how *ANPPwoody* is jointly shaped by climate– both directly and indirectly (through GPP).

# References

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