Increase in functional diversity compensates reduction on Amazon forest's productivity in drier climate: exploring a new trait-based model

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LabTerra

Earth System Science La

Diversity representation in vegetation models



(Cox et al., 2000; Sitch et al., 2003; Levis et al., 2004; Rammig et al., 2010)



Diversity representation in vegetation models





(Cox et al., 2000; Sitch et al., 2003; Levis et al., 2004; Rammig et al., 2010) (Van Bodegom et al., 2012; Fyllas et al., 2014; Sakschewski et al., 2016; Sicheiter, Lagan & Higgins, 2013; Verheijen et al., 2013; Pavlick et al., 2013)

(<u>CA</u>rbon and <u>E</u>cosystem functional <u>T</u>rait <u>E</u>valuation model)

Possible values of a **TRAIT** — Axis of **VARIATION**























(<u>CA</u>rbon and <u>E</u>cosystem functional <u>T</u>rait <u>E</u>valuation model)



Random sampling







Model experiment: Amazon forest's carbon stock with low precipitation and the role of functional diversity













Carbon Allocation (%)





Carbon Allocation (%)











Change in total biomass



Change in fine roots biomass

(†

BY

CC



Switch to more belowground investiment



BY

Switch to more belowground investiment





Switch to more belowground investiment



(j

BY

How is our new community?





How is our new community?





Decrease in dominance and increase in functional richness



Multi-trait analysis Increase in functional diversity







Increase in functional diversity Which traits matter?



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Conclusions



Conclusions



Conclusions

