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Supplement of

The impact of a simple representation of non-structural carbohydrates on the simulated response of tropical forests to drought

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JULES Simulations

JULES version 5.2. If you have access to the met-office code repository, the rose suites used are u-bd920 and u-bd921 owned by user simonjones. Otherwise see below for details of configuration.

Driving data:

- Hourly meteorological data collected from Caxiuanã
- Start date: 2001-01-01 00:00:00
- End date: 2016-12-09 14:00:00
- Precipitation halved in the TFE file from the start of 2002.

JULES was first used to simulate the control plot. In this initial simulation predicted GPP was much lower than observations (Metcalfe et al. 2010, Da Costa et al. 2014) from the site. To solve this we increased effective leaf nitrogen content in JULES by increasing parameter *'vint'* and *'vsl'*. These represent the intercept and slope, respectively, of the linear relationship between Vcmax and Narea.

We increased:
vint from 7.21 → 12.0
vsl from 19.22 → 25.0

This increases Vcmax, bringing predicted GPP in-line with obseravtions.

This increase in Vcmax however, also increases predicted plant respiration in JULES. The predicted carbon use-efficiency was therefore too low. To solve this we reduced the parameter *'fd'* which controls the linear relationship between dark respiration and Vcmax.

This was reduced by 25% from 0.01 → 0.0075.

This configuration was then used to simulate both control and TFE plot.