

Estimating the impact of climate change on Brazil's planted forests sector

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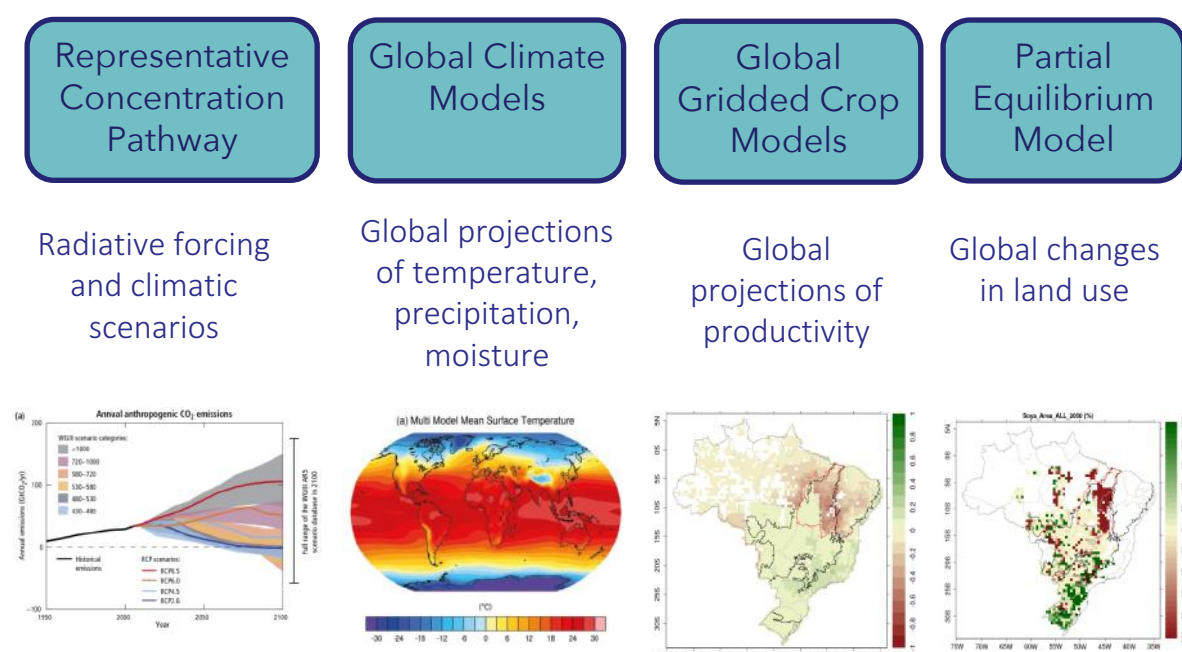
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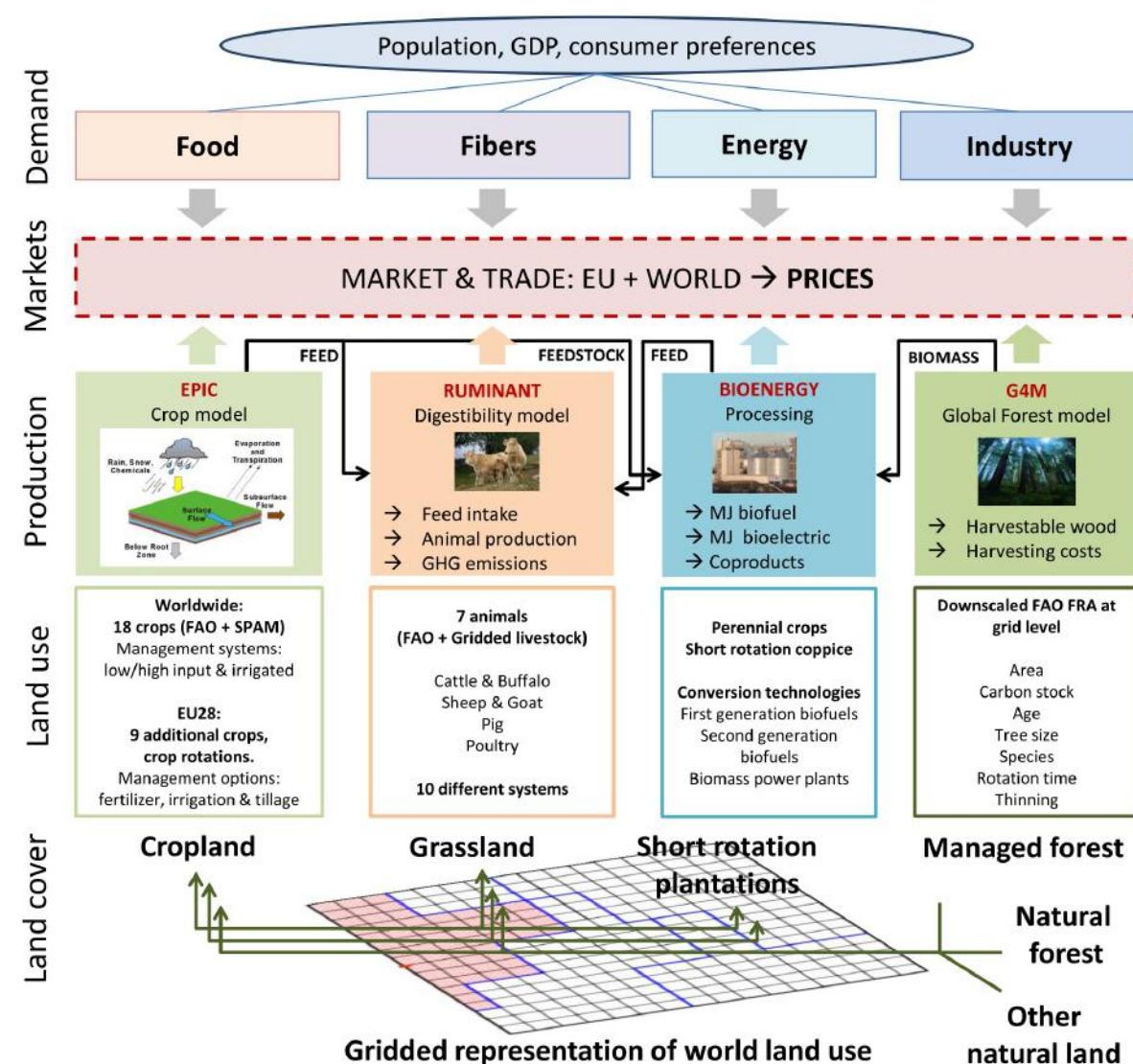
Introduction

Brazil has 9.85 million hectares of planted forests, grown mainly in the South and Southeast regions. These forests have species of the genera Eucalyptus and Pinus, which represent 93% of the total. In 2017, 139.83 million cubic meters of log wood for paper, cellulose and other purposes were produced. However, projected advances of the planted forests sector in Brazil can be directly impacted by climate change and resulting biophysical effects. Here, we quantify these impacts using a global partial equilibrium model, GLOBIOM-Brazil (Soterroni et al., 2018).

Modelling Framework

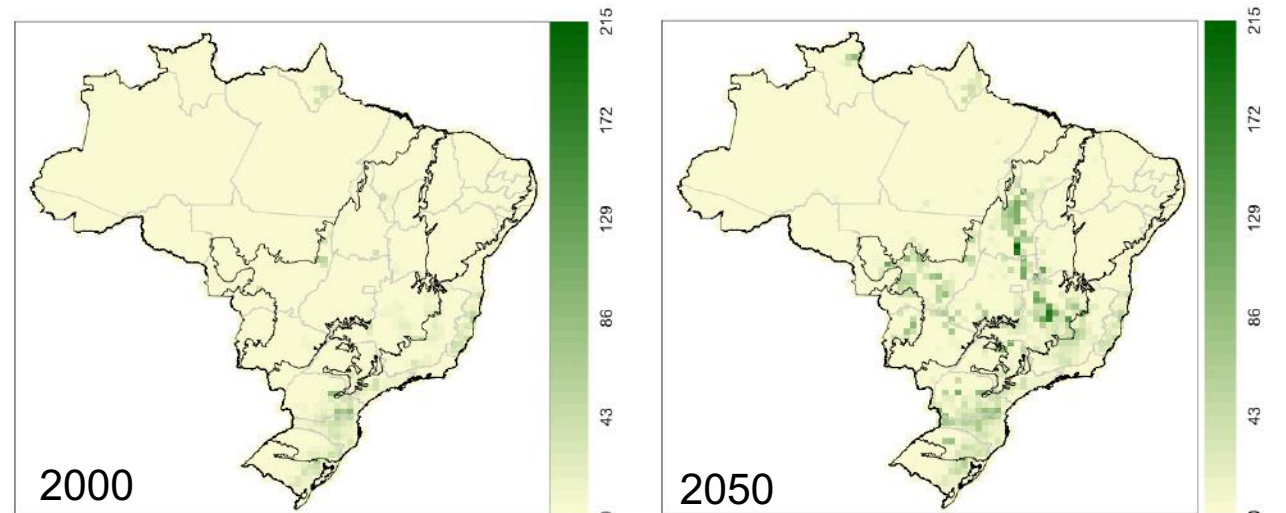


Model and scenarios definition



- Population and GDP : SSP2
- GHG emissions: RCP2.6 and RCP8.5
- Climatic projections: 5 GCMs
- Agricultural productivity: EPIC
- Governance scenario: Imperfect control of deforestation in Amazon and Cerrado Biomes

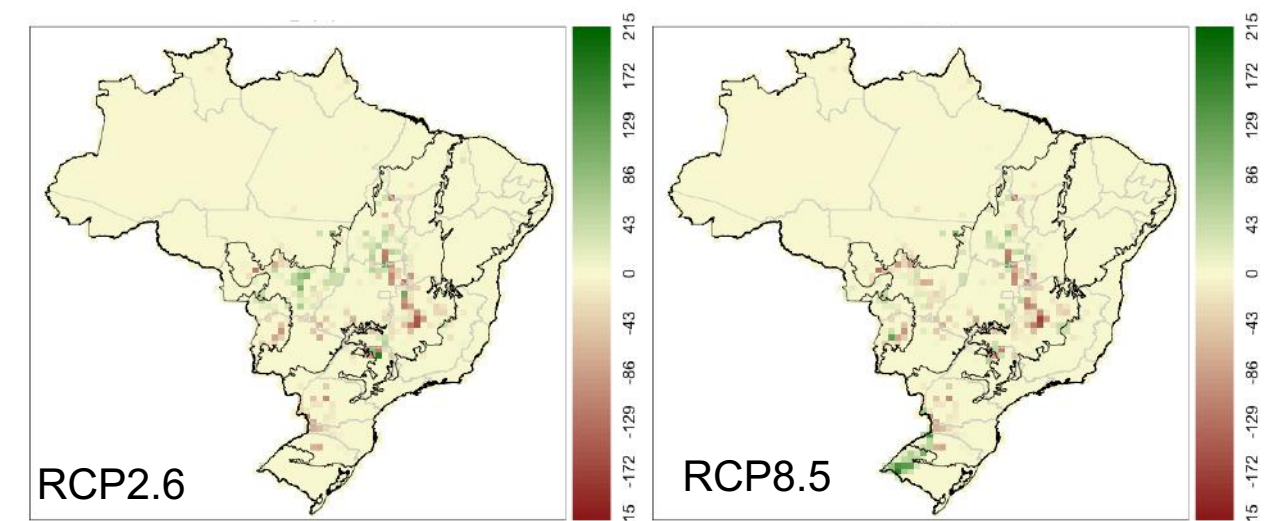
Baseline Scenario



Spatial distribution of planted forest area in Brazil from Baseline scenario in 2000 and 2050.

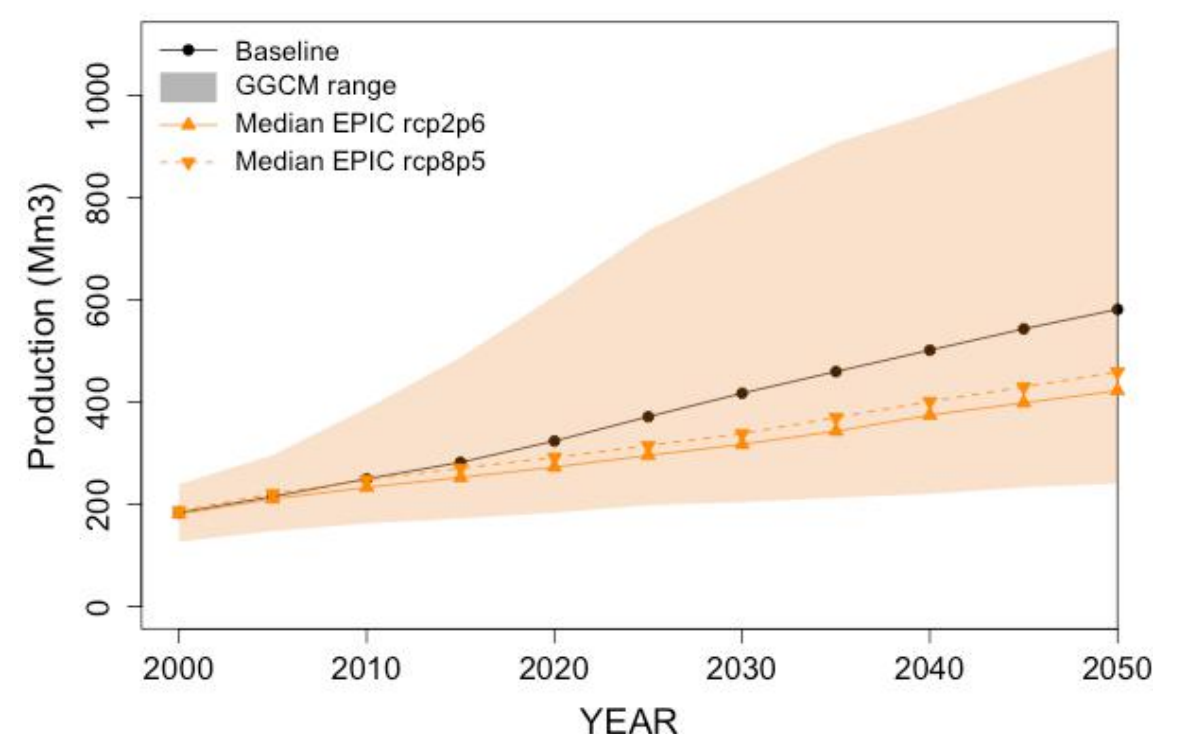
- Largest increase over Cerrado biome.

Climatic Scenario



Median changes in planted forest area for EPIC in RCP2.6 and RCP8.5 scenarios, expressed as the difference from Baseline scenario in 2050. Positive (negative) changes are represented as green (red) shades.

- Reduction of the planted forest area in Cerrado Biome for both scenarios.
- RCP8.5 projected an increase in planted forest area.



Projections of biomass of planted forest aggregated over Brazil for Baseline(black line) and EPIC scenarios (orange). Solid (dashed) lines and upward (downward) triangles represent the median scenarios for RCP2.6 (RCP8.5). Orange shades areas represent the envelope of minimum and maximum projections in EPIC.

Reference

Soterroni et al 2018: *Environ Res Lett* DOI: 10.1088/1748-9326/aaccbb