Scaling photosynthesis in Amazonian ecosystems: from forest to savanna, from seasons to extreme events

Motivation

Photosynthesis models are generally simple, based on the assumption of linear relationships between light, temperature, and photosynthesis. However, in tropical forests, where light and temperature vary significantly over the day and season, these models may not accurately predict photosynthesis.

Observations

Our observations show that photosynthesis in tropical forests is highly variable, with daily and seasonal fluctuations. This variability is driven by the interaction of light, temperature, and water availability.

Challenges

The challenge is to develop a photosynthesis model that can accurately predict photosynthesis under a wide range of environmental conditions.

Approach

We are using a combination of remote sensing and in situ measurements to develop a more accurate photosynthesis model.

Results

Our model shows a better agreement with observations than previous models, particularly in predicting the effects of light and temperature on photosynthesis.

Implications

This model can be used to improve our understanding of the carbon balance of tropical forests, and to inform climate change mitigation strategies.

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References


