

## **Recent Progress in Modeling Biome-Climate Interactions in Amazonia**

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Vegetation and climate present bidirectional interactions in many time scales from seasons to decades, centuries, and longer. In Amazonia, it is thought that the tropical forest and climate are in a state of stable equilibrium, that is, at least in part the distribution of climate parameters, mostly rainfall distributions, are to a certain extent influenced by the existence of the forest. There are ample paleoclimate evidence of a different vegetation distribution over Amazonia during the LGM: the areas covered by forest were much reduced compared the present-day situation and large areas were covered by savannas. A number of sensitivity studies of the climate impacts of total Amazonian deforestation indeed show the possibility of a post-deforestation drier and hotter climate, consistent with 'savannazation' of portions of Amazonia. Theoretical search of different biome-climate stable equilibrium states has revealed a second stable state not far from the current one for Amazonia. However, this second state presents less forest and more savannas over eastern Amazonia. Deforestation and regional climate changes induced by the global warming could in principle tip the current balance towards this new equilibrium state. The ecological consequences of such theoretical possibility will be discussed.