Hybrid BSC RS: Tropical forest dynamics in ESM4.1: ecological processes, disturbance and climate change projections

Objectives

Abstract: Tropical forests contribute a major sink for anthropogenic carbon emissions essential to slowing down the buildup of atmospheric CO2 and buffering climate change impacts. However, the response of tropical forests to more frequent weather extremes and long-recovery disturbances like fires remains uncertain. In this talk, I will review recent research toward improving the representation of tropical vegetation in GFDL-ESM4.1. These efforts focused on the implementation of basic ecological processes, from updating plant growth carbon allocation schemes, to developing plant functional types for tropical vegetation. Then, I will discuss CMIP6 projections of tropical vegetation futures, and the resilience of forests to natural disturbances. Simulations based on ESM4.1 revealed complex nonlinear responses in tropical forests that highlight the urgent need to research postfire recovery and its representation in ESMs.

Short biography:

Isabel Martinez Cano is a research associate scholar at the Princeton Environmental Institute (Princeton University). She developed her career as an ecologist working at the interface between the analysis of field observations and experiments and the development of mechanistic models to understand and predict vegetation dynamics at a range of spatial and temporal scales. She is interested in understanding the impacts of global change on forest ecosystems and their potential contribution to nature climate solutions.

Speakers

Speaker: Isabel Martinez Cano is a research associate scholar at the Princeton Environmental Institute (Princeton University).
Host: Etienne Tourigny, Climate Variability and Change Established Researcher, Earth Sciences

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